JOURNAL
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AMERICAN VETERINARY MEDICAL ASSOCIATION

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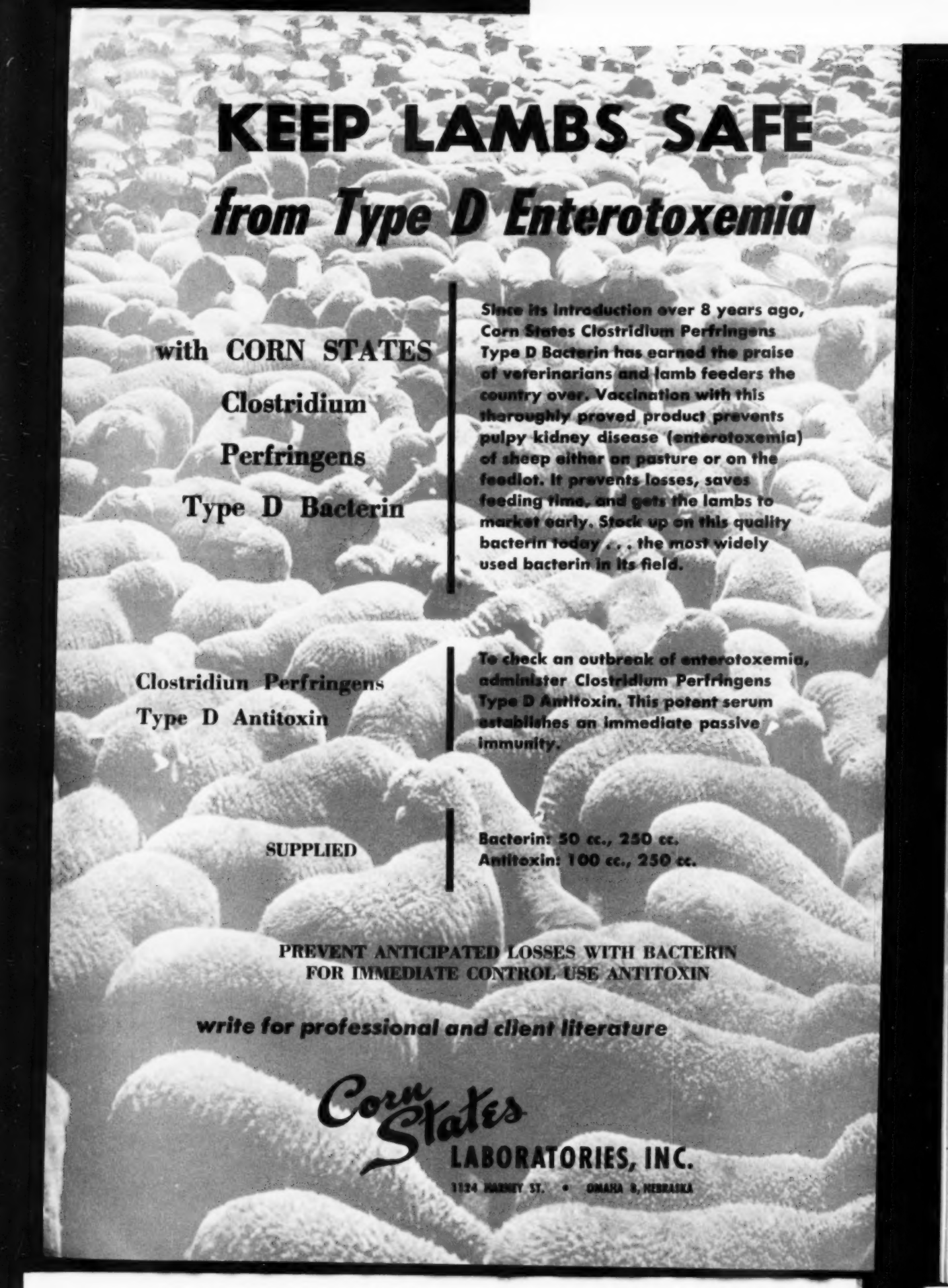
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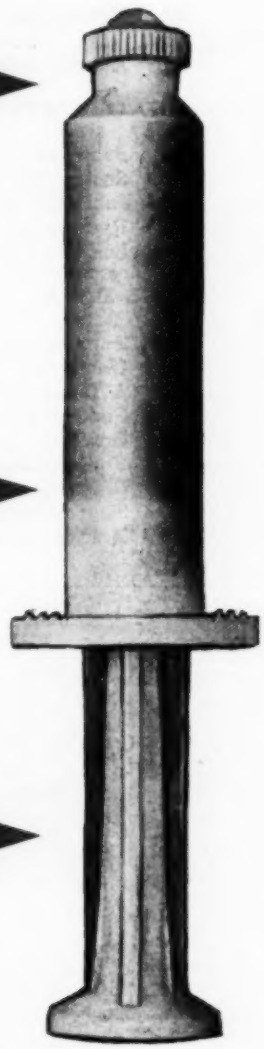

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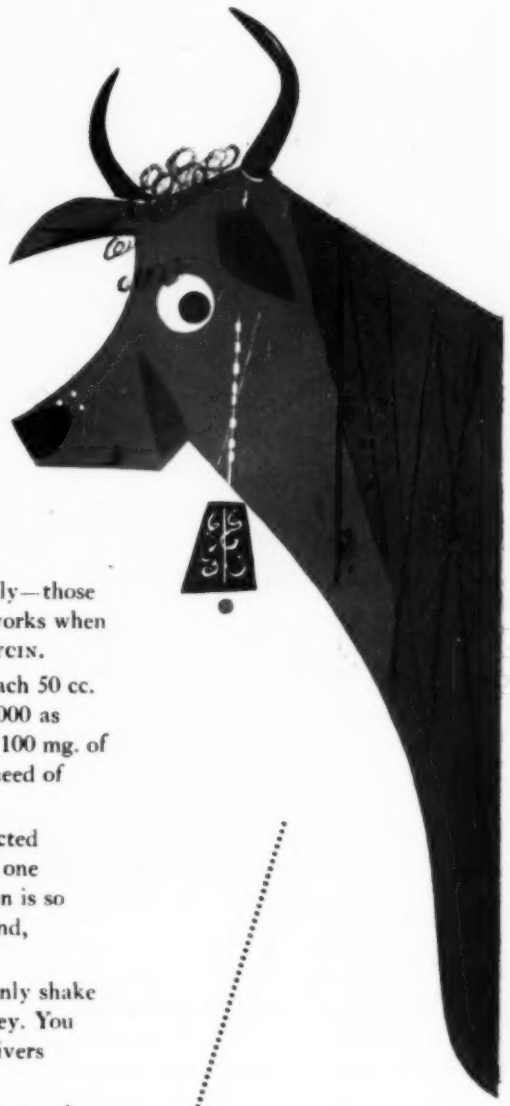

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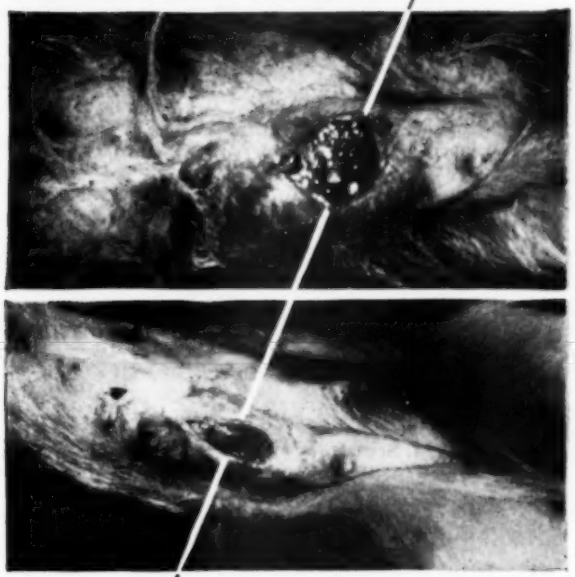

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Veterinary Medical Activities

✦ The Board of Governors (Executive Board Chairman S. F. Scheidy, President A. H. Quin, and President-Elect Floyd Cross) were in session at Association Headquarters in Chicago on October 2.

* * *

✦ President A. H. Quin took part in the programs of the annual meeting of the New Mexico V.M.A. in Santa Fe, N. M., September 13-14; the New England V.M.A., Swampscott, Mass., October 7-9; the Eastern Iowa V.M.A., Cedar Rapids, Iowa, October 14-15; the Southern V.M.A., Asheville, N. Car., October 18-20; the Mississippi Valley V.M.A., Peoria, Ill., October 27-28.

* * *

✦ President-Elect Floyd Cross spoke at the annual meeting of the Interstate V.M.A., Sioux City, Iowa, October 28-29.

* * *

✦ Editor-in-Chief W. A. Aitken attended the Forty-Second Annual Short Course for Veterinarians at Purdue University, October 7-9.

* * *

✦ President A. H. Quin was the principal speaker at the Iowa State College Student Chapter fall banquet on October 6.

* * *

✦ President A. H. Quin, Executive Board Chairman S. F. Scheidy, Dr. J. L. McAuliff, chairman of the AVMA Special Committee on Brucellosis, and Assistant Executive Secretary Kingman attended a meeting in Washington, D.C., October 9 and 10 to discuss the expanded brucellosis eradication program with officials of the Agricultural Research Service.

* * *

✦ Members of the AVMA Special Committee on Brucellosis attended regional meetings sponsored by the Disease Eradication Branch of ARS in Salt Lake City, Utah, October 11; Chicago, October 13; Asheville, N. Car., October 19; and New York City, October 21, to assist in formulating brucellosis eradication programs designed to permit greater practitioner participation in this field.

* * *

✦ Assistant Executive Secretary Kingman attended the annual meeting of the American Medical Association's Council on National Defense held in Chicago, October 23-24.

* * *

✦ The Committee on Program [General Practice—J. L. McAuliff (New York), chairman, and Dale K. Sorensen (Minn.), secretary; Research—G. A. Young, Jr. (Minn.) chairman, and Lloyd Ferguson (Ohio), secretary; Small Animals—Jack O. Knowles (Fla.), chairman, and G. W. Mather (Minn.), secretary; Poultry—E. E. Jones (Calif.), chairman, and M. S. Hofstad (Iowa), secretary; Surgery and Obstetrics—T. R. Phelps (Wash.), chairman, and A. R. Roseberg (N. Dak.), secretary; and Public Health—C. A. Brandly (Wis.), chairman, and R. L. Hummer (Ala.), secretary] met at Association headquarters October 6 to develop the scientific program for the Ninety-Second Annual AVMA Meeting to be held at Minneapolis Aug. 15-18, 1955.

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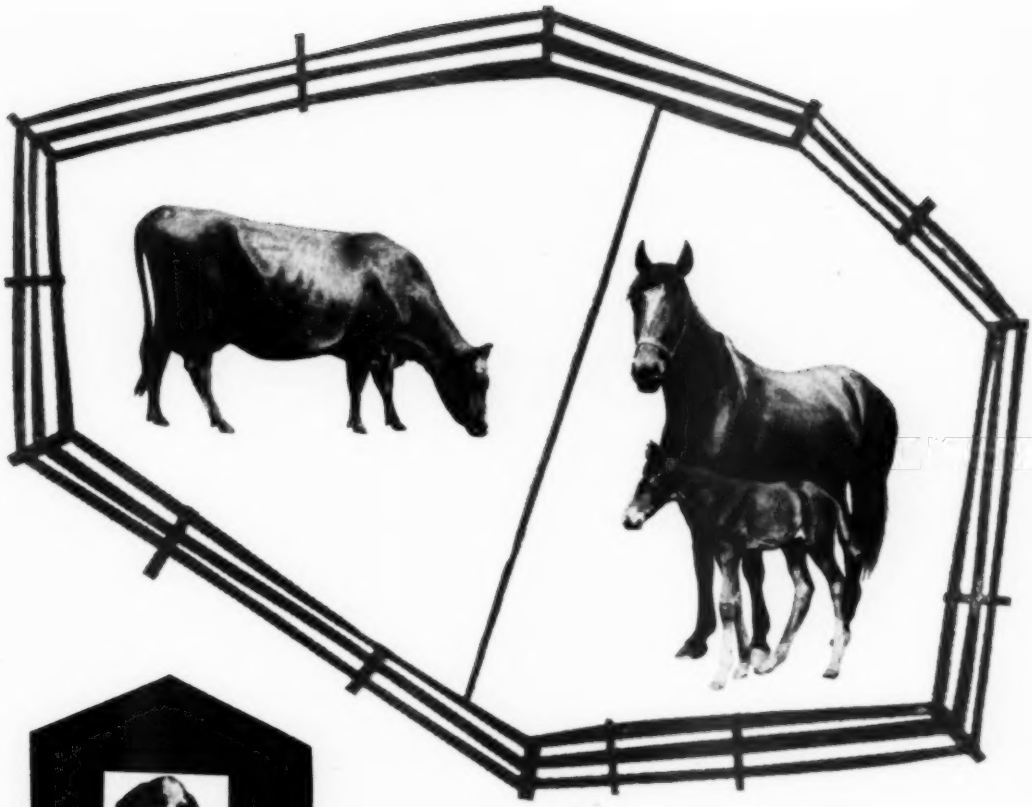

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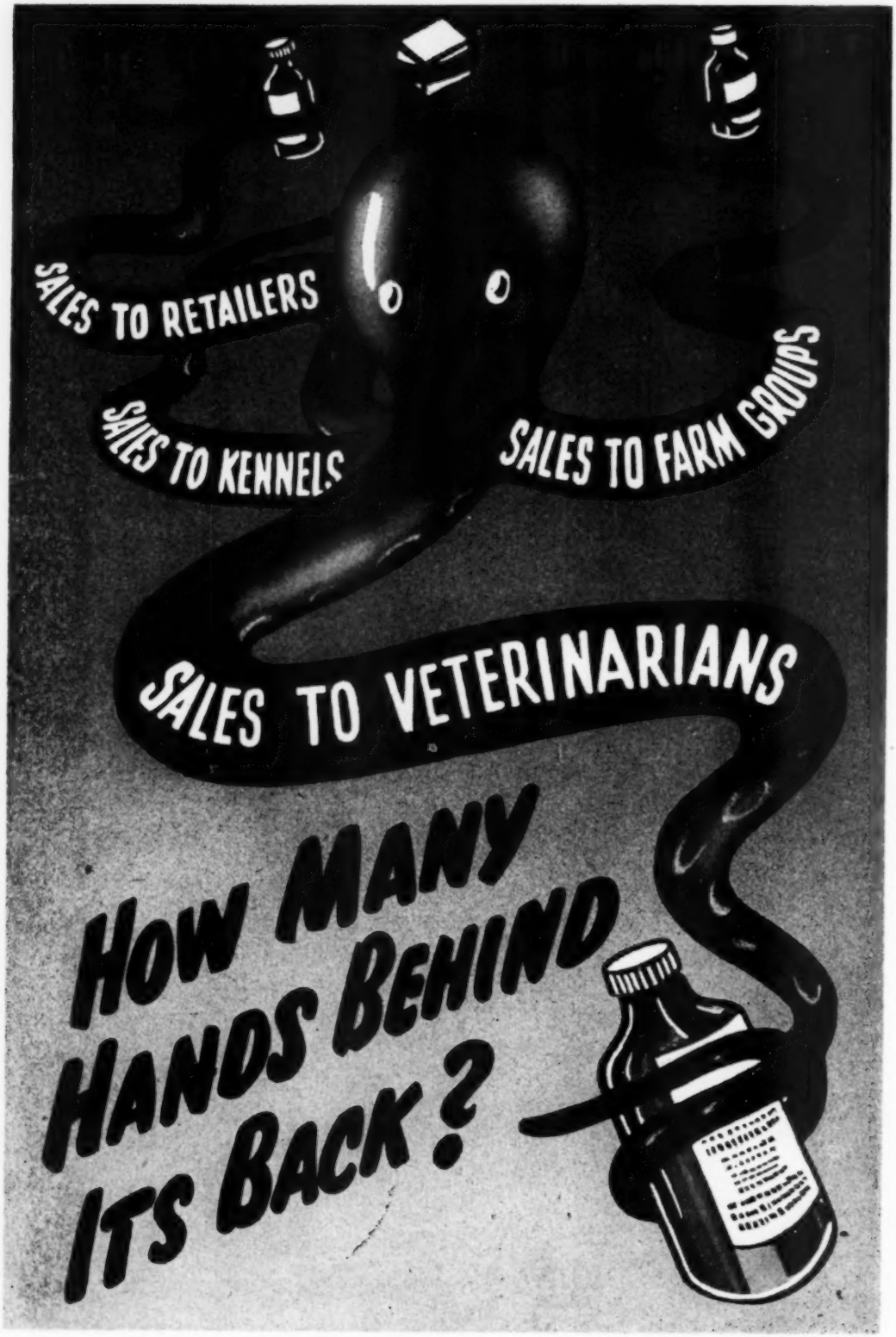
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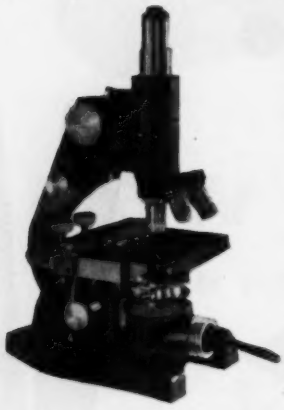

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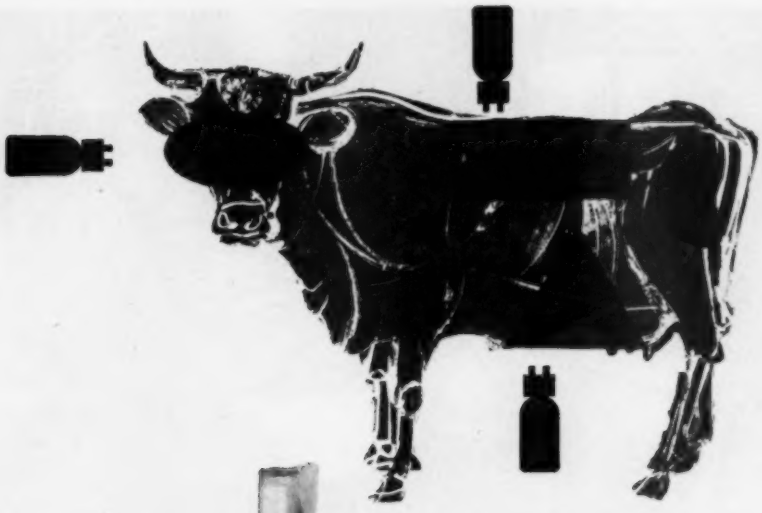

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ulcers	retained placenta
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eczema	bovine mastitis

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The Use of Beta Radiation for the Treatment of Epithelioma of the Cornea in Cattle

J. D. WHEAT, D.V.M.; A. L. BLACK, Ph.D.; T. J. HAGE, D.V.M.;
E. A. RHODE, D.V.M.

Davis, California

RADIOACTIVE SUBSTANCES have been used for the treatment of various types of tumors for several years. The recent availability of radioactive isotopes in large quantities as by-products of the atomic reactors has stimulated the search for new uses for these materials. About two years ago, this clinic began a study of the response of epithelioma* of the cornea in cattle to treatment with one of these radioactive isotopes, strontium-90. This paper will report the success of such application in more than 30 cases of this condition.

Epithelioma of the eye is found in about 3 per cent of the Hereford cattle in California and in other areas of the Southwest. These cancerous growths generally originate on the external eyelid, the nictitating membrane, or the corneal surface of the eye and initially extend only a few millimeters into the tissue below. The development of this cancer is relatively slow and, if treated during the first several months of growth, it will readily respond to treatment with radiation. In later stages of development, the growth penetrates more deeply into the underlying tissues, necessitating enucleation of the eye and its surrounding structures. If left untreated, it extends beyond the point of possible treatment and the animal must be destroyed. The importance of early detection of cancer eye is thus apparent.

From the School of Veterinary Medicine, University of California, Davis.

The authors thank Mr. Lawrence Berry for his technical assistance on this project.

*Histological examination of the tumor tissue examined revealed squamous cell carcinoma or papillomas in all cases.

X RAYS VERSUS BETA RADIATION

Radiation has the same effect on tissue whether it originates from x-ray equipment or from a radioactive isotope such as strontium-90 which emits *beta* particles. Either type of radiation exerts its effect by ionizing the chemical compounds of the cells through which it passes. If enough radiation enters the cell so that a critical part of the interior is ionized, the cell can no longer function properly and dies. Some types of tumor cells are especially sensitive to ionization compared to most normal cells and may be selectively destroyed by proper levels of radiation. Normal tissue then has an opportunity to re-establish itself in the treated areas.

X rays differ from *beta* radiation in one important respect—the range of penetration into tissue. X rays, depending on their energy level, penetrate deeply into tissue, distributing their radiation through a thick section of the body. The most energetic *beta* particles, on the other hand, penetrate tissue to a depth of less than 1 inch. The limited range of *beta* particle penetration permits selective treatment of a thin segment of tissue near the surface without exposing deeper layers of normal tissue to the ionizing radiation. The advantage of such selective zonal treatment is apparent in the case of the eye where the protein tissue of

the more deeply situated lens is especially radiosensitive and excessive exposure can lead to cataracts and loss of sight. When cancerous growths are restricted to the surface, as in early epithelioma of the eye, *beta* radiation is the treatment of choice.

The radioactive source used in this

Fig. 1—Carcinoma of the cornea of a cow prior to treatment.

study** contained 50 mc. of strontium-90† and delivered energy at the rate of 53 roentgen equivalent physicals (r.e.p.) from an active surface of 0.385 cm.^{2} The *beta* particles emanate from this source with a maximum energy of 2.2 million electrical volts (m.e.v.) and have a half layer of penetration of about 1 mm. of tissue. Thus, the first millimeter of tissue directly under the surface of the probe receives about 26 r.e.p. per second, the next 1-mm. layer about 13 r.e.p. per second, and each succeeding layer receives one-half of the dose of the layer just above. In this way, one may calculate that most of the radiation (96%) is delivered to the outer 0.5 cm. (0.2 in.) of tissue and only a minor part of the radiation (4%) reaches deeper tissues. Because of this exponential decrease of the dosage level with depth, it becomes necessary to

**We are indebted to Mr. Tom Kelley of Tracerlab Inc. for the loan of a 50-mc. strontium-90 applicator used during the early part of this study.

†Strontium-90 decays to yttrium-90 with the emission of a 0.54 m.e.v. beta particle. The daughter isotope, yttrium-90, then decays to zirconium-90 by emitting a 2.2 m.e.v. beta particle. It is this latter particle that is most effective in producing the ionization.

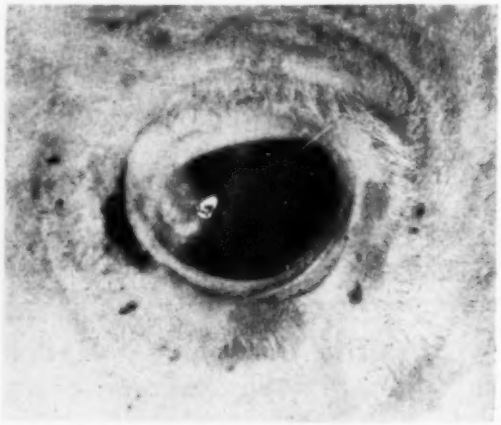

Fig. 2—The same eye as shown in figure 1 on the sixth day following treatment.

expose the tissue for a longer time than that necessary to kill the outer layers of cancer cells. The exposure must be sufficiently long to destroy the deepest cancerous cell.

DOSAGE LEVEL

To select the proper dosage level for treatment of epitheliomas, the eyes of normal sheep were exposed for increasing time intervals to determine at what level undesirable effects appeared in normal tissue. The eyes of these animals were exposed to radiation levels ranging from 1,000 to 25,000 r.e.p. administered in a single application. In each case, the eyes developed a glossy appearance that was somewhat iridescent as if an oily film covered the surface. This appeared on the seventh or eighth day following treatment and disappeared in twenty-four to forty-eight hours. The eyes appeared normal at later times and gave no indication of further reaction to the treatment. This resistance of corneal tissue in sheep, and also in cattle, is in marked contrast to the response of corneal tissue in man. In human patients, a radiation dosage of about 300 r.e.p. is applied to the cornea in each application and the treatment is limited to a total of four applications. Unless this caution is observed, the cornea may be readily perforated, according to Friedell.[1] Since this danger apparently does not exist in farm animals and because only transitory effects were observed at the 25,000-r.e.p. level in normal tissue, this upper level was selected for treatment of epithelioma of the eye.*

SINGLE VERSUS FRACTIONATED TREATMENT

It is generally recommended that *beta* radiation treatment be fractionated so that the total dose is delivered in several applications over a period of many days or weeks. The rationale behind this method is that the surface cells destroyed by the early treatments will be sloughed off and subsequent exposures will be more effective on the deeper cells of the cancerous growth. There is, however, an opposing factor that reduces the efficiency of this fractionated treatment. Some of the processes within the cell are affected reversibly by radiation[2] and after a time interval will recover, thus permitting the cell to resume its activity and the cancer to continue growing. At higher exposure levels, however, additional changes occur within the cell that are irreversible, so the cell can not recover and dies. This loss of efficiency with fractional treatment is illustrated in the result reported by Catcott *et al.*[3] in which a horse was treated for an occular tumor 11 different times over a period of four and one-half months. This treatment consisted of more than 46,000 r.e.p. of total exposure and at the end of this period the tumor was still present although it had decreased to one-fifth its original size. It has been our experience that a single application of 25,000 r.e.p. results in a complete regression of the eye tumor within a few weeks after treatment. The advantage of the single treatment is further emphasized because of the necessity to restrain the animal and prepare it for treatment. The time and effort necessary to prepare the animal for treatment make it desirable to reduce the number of exposures to a minimum. Certainly, in the case of range cattle, it would be inconvenient to hold the animal for several weeks, and treatment by single application would be preferable.

CLINICAL APPLICATIONS

The majority of the cases have been treated with the animal in a cattle chute which has a head-restraining device. A 2 per cent butyn sulfate solution was applied to the cornea to lessen contact sensitivity.

It is necessary to have the eyeball immobilized during treatment. This is done by forcing the eyeball out of the bony socket. In some cattle, it is forced out easily by placing the thumb on the upper eyelid and exerting pressure medially and downward in back of the eyeball. After the eyeball is protruded, the upper and lower eyelids are held together with Backhaus towel clamps to prevent the eyeball from retracting. If the palpebral opening is not large enough to allow the eyeball to pass through, it can be enlarged by making a small incision through the lateral canthus with a pair of scissors. If the eyeball can not be easily expressed by the above method, the nerve supply to the eye muscles can be blocked by a local anesthetic, causing complete immobilization.[4]

Fig. 3—Carcinoma of the cornea, demonstrating the large amount of superficial tumor which occurs in some cases. This case was successfully treated two years ago. There is no evidence of recurrence to date.

Before treating the tumor with the strontium-90 applicator, the growth should be shaved down level with the cornea. This procedure is highly important in order to allow sufficient depth of *beta* ray penetration to kill tumor cells. The fall-off of dosage is so great that the excessive tissue thickness might prevent the desired action. The strontium-90 applicator should be held in contact with the cornea at all times during the treatment. We applied enough pressure on the applicator to leave its imprint temporarily on the cornea, thus accurately outlining the field covered.

*The applicator now used by this clinic contains 100 mc. of Sr-90 and delivers 87 r.e.p./sec. over an active surface of 0.8 cm.^{2}; 25,000 r.e.p. are delivered during five minutes of application.

Although we have tried to stress the importance of early treatment, in some cases the tumor was as large as 2 cm. in diameter. Treatment of the base of a tumor of this size required dividing the area into as many as seven fields, and radiating each field separately. This resulted in a slight overlap of each field of treatment to insure that the area was adequately covered. The cornea has a great deal of resistance, as we have applied as high as 75,000 r.e.p. to some areas without apparent damage. In the majority of cases, the treated area has a grayish, cloudy appearance for seven to ten days. Later, in many cases, it is impossible to tell by observation which was the affected eye. Occasionally, this treatment results in a small opaque scar on the cornea. No specific after-care is required with this method of treatment.

Recurrence has been reported in 1 of the 35 animals treated. As direct information and observation of this 1 animal was impossible, we were not able to determine whether this was a recurrence of the same growth or a new tumor.

SUMMARY

The use of short-range *beta* particles for treating epithelioma of the cornea of cattle is described. The clinical use of strontium-90 as a source of *beta* rays has been found to be satisfactory. Due to the low penetration of the *beta* ray, the lens and deeper structures of the eye are not damaged by radiation effects.

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[3]Catcott, E. J., Tharp, V. L., Johnson, L. E.: Beta Ray Therapy in Occular Diseases of Animals. J.A.V.M.A., *122,* (1953): 172-175.

[4]Peterson, D. R.: Nerve Block of the Eye and Associated Structures. J.A.V.M.A., *118,* (1951): 145-148.

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Status of Foot-and-Mouth Disease in South and Central America and the Caribbean Area (An Abstract)

Venezuela and Colombia were free from foot-and-mouth disease (aftosa) until 1950 when it appeared in Venezuela, presumably introduced by import of cattle from an infected country. It was at first mistaken for vesicular stomatitis and spread rapidly. In 1951 it spread to Colombia. An effective campaign, including slaughter of infected animals, disinfection, quarantine measures, vaccination, and control of the movements of susceptible animals and products capable of transmitting the virus, conducted entirely by state authorities, has resulted in a considerable reduction of the incidence of the disease in Venezuela; only six outbreaks were confirmed by laboratory methods in 1953. Until 1951 only type O was diagnosed. In 1951, cases of type A appeared but were confined to a small area in northern Venezuela.

In Colombia, no official survey has been made on the distribution of the disease but it is presumed to have spread to most cattle regions. The recognition of new outbreaks is complicated by the presence of vesicular stomatitis, which is widespread.

In 1951, due to the increased danger of spread to other republics and territories of the Caribbean area, the Panamanian government sponsored a regional consultative conference on foot-and-mouth disease which was attended by delegates from all the threatened areas. One result was the appointment by FAO of two veterinarians to assist, in an advisory capacity, the governments within the area in prevention measures. Their activities have included the investigation of possible sources of introduction of the disease, revision of the governments' legal measures aiming at preventing introduction of the disease, and informatory work.

With a vast, thinly populated jungle region between Colombia and Panama, the major problem has consisted of counteracting an uncontrolled traffic of susceptible animals by sea. The various countries and territories have adequate regulations restricting importations of potential virus carriers but they are without sufficient veterinary supervision and adequate veterinary services.

Foot-and-mouth disease was introduced

Abstract of a paper presented by Dr. E. Harrestrup Andersen, veterinarian, Food and Agriculture Organization, Panama, at the British Caribbean Veterinary Association's first convention meeting, Port-of-Spain, Trinidad, May, 1954.

to Martinique in 1952 and to Aruba in 1953. The rest of the republics and territories of the Caribbean area have remained free from the disease.—*Dr. E. Harrestrup Andersen, Panama.*

More AVMA Convention Highlights

Attendance at the Ninety-First Annual meeting of the AVMA (Aug. 23-26, 1954) in Seattle did not quite reach the preconvention estimate of 2,500 but came close to it.

Official Registration Figures

The total registration was 2,396 as follows:

Veterinarians	1,169 (49%)
Women	714 (30%)
Children	180 (8%)
Exhibitor representatives	205 (8%)
Guests	128 (5%)

Geographical Distribution

Following the pattern adopted two years ago, table 1 presents the regional distribution of registrants.

Every state in the Union except Arkansas was represented at Seattle. Arranged in the order of numbers of registrants, the regional breakdown shows:

Western States	1,132
East North Central	306
West North Central	302
North Atlantic	129
South Central	120
South Atlantic	110
	2,099

TABLE I—Regional Distribution of Registrants at the Seattle Meeting, Aug. 23-26, 1954

NORTH ATLANTIC STATES	
Maine	3
New Hampshire	1
Vermont	4
Massachusetts	3
Rhode Island	5
Connecticut	7
New York	58
New Jersey	19
Pennsylvania	29
Subtotal	129
EAST NORTH CENTRAL	
Ohio	65
Indiana	53
Illinois	86
Michigan	50
Wisconsin	52
Subtotal	306
WEST NORTH CENTRAL	
Minnesota	65
Iowa	90
Missouri	52
North Dakota	3
South Dakota	6
Nebraska	31
Kansas	55
Subtotal	302
SOUTH ATLANTIC	
Delaware	3
Dist. of Columbia	26
Maryland	21
Virginia	20
West Virginia	10
North Carolina	6
South Carolina	2
Georgia	13
Florida	9
Subtotal	110
SOUTH CENTRAL	
Kentucky	2
Tennessee	9
Alabama	15
Mississippi	6
Arkansas	—
Louisiana	6
Oklahoma	13
Texas	69
Subtotal	120
WESTERN	
Montana	47
Idaho	57
Wyoming	10
Colorado	37
New Mexico	15
Arizona	16
Utah	33
Nevada	10
Washington	433
Oregon	151
California	323
Subtotal	1,132
Total U.S.A.	2,099
OTHER COUNTRIES	
Canada	82
Philippines	1
Sweden	1
U. S. Possessions	8
Exhibitors	205*
Grand Total	2,396

*Not included in breakdown

The five states with highest numbers of registrants were: Washington, 433; California, 323; Oregon, 151; Iowa, 90, and Illinois, 86.

Reports—Group Conferences Held During AVMA Seattle Meeting

Conference of Veterinary Parasitologists

Seventeen parasitologists attended the no-host luncheon meeting held in the Olympic Hotel on Aug. 25, 1954. Reports were given by each in attendance on research work in progress or contemplated at their respective stations. Discussions of the work brought forth many of the problems confronting parasitologists throughout the country. A summary of the reports will be made available to interested persons in the near future.

Dr. Koutz, committee chairman on the organization of veterinary parasitologists, submitted a list of suggestions by the committee pertaining to forming an organization. After some discussion, it was proposed that the report of the committee be sent to all individuals working on parasites and parasitic diseases of domestic animals and that no further action be taken until the 1955 AVMA meeting in Minneapolis, when a similar conference is to be held.

Dr. F. R. Koutz was reelected chairman of the committee on organization.—*Lee Seghetti, Program Chairman, AVMA Committee on Parasitology.*

Association of Deans of Colleges of Veterinary Medicine

The Association of Deans of American Colleges of Veterinary Medicine met for luncheon on August 22 with President E. E. Leasure presiding. All of the 19 schools in Canada and the United States were represented, except the School of Veterinary Medicine of the Province of Quebec.

President Leasure introduced Deans Armistead (Texas), Jasper (California), and Thorp (Minnesota) and welcomed them into the organization. The deans heard reports and discussions on such subjects as selective service, the veterinary medical

(Continued on page 363)

Television Broadcasts at the AVMA Meeting in Seattle, Aug. 23-26, 1954

Dr. A. G. Misener (left) has just finished declawing one foot of the cat in the Small Animal Section. Dr. L. E. Fisher, director of television, looks on.

Dr. Harry Hardenbrook, Jr., demonstrating lumbar epidural anesthesia in the cow in the General Practice Section.

Calf delivered by cesarean section by Dr. Sam Elmer in the General Practice Section. Dr. L. E. Fisher, director of the television broadcasts, is at the right.

Dr. R. I. Ford (left) and Dr. C. M. Bemis demonstrating the thoracic approach in repairing diaphragmatic hernias.

Dr. J. D. Wheat demonstrating application of strontium 90 in treatment of corneal epithelioma in cattle in the General Practice Section.

Dr. N. H. Booth, Dr. A. D. Rankin, and Dr. R. E. Pierson (left to right) demonstrating artificial respiration in a horse in the Surgery and Obstetrics Section.

(Continued from page 361)

aptitude test, and international meeting of deans of schools of veterinary medicine, motion pictures and television, graduates of foreign colleges of veterinary medicine, academic costumes, numbers of applicants, regional education, exchange of special lecturers, and others.

Meeting with the association were Colonel Richard H. Eanes, Drs. A. H. Quin, Loyal Payne, E. C. Chamberlayne, Robert Getty, and John D. Gadd, who participated in the discussions or made reports.

Of general interest might be the approval of a suitable oath for graduates in veterinary medicine and the adoption of a distinctive academic costume for holders of and candidates for the D.V.M. degree. The gown and hood, if approved by the Council on Education of the AVMA, can be worn in the future.

The officers were re-elected.—*A. H. Groth, Secretary.*

The Association of Veterinary Anatomists

The American Association of Veterinary Anatomists held its annual meeting on August 23 at the Olympic Hotel with 15 members representing nine schools, in attendance.

Dr. R. W. Davis, president, read and presented to Dr. J. D. Grossman a letter in testimony to Dr. Grossman's long and meritorious service in the veterinary profession and in the field of anatomy.

Dr. H. L. Foust spoke of the work being accomplished by the International Commission on Nomenclature. Indications are that the commission is making good progress.

Reports of the results of the annual questionnaire were distributed. This was followed by a discussion period during which newer approaches to the teaching of anatomy were reviewed and the preparation and use of various visual aids were described. Also discussed was the need for a centralized cataloging of anatomical materials of known breed, genotype, sex, and age, available at different schools.

Officers elected were Drs. J. A. McCurdy, Washington State College, president-elect; and D. R. Peterson, Oklahoma A. & M. College, secretary-treasurer.—*J. A. McCurdy, Retiring Secretary.*

The American Board of Veterinary Public Health

The fifth annual meeting of the American Board of Veterinary Public Health was held at the Olympic Hotel, Aug. 23, 1954, at 8:00 p.m., with president H. J. Stafseth, presiding. Examinations were given to four new applicants.

Several new amendments were proposed to the constitution and bylaws which would clarify the procedures for the election of honorary fellows and also require that all applicants for board certification be sponsored by a fellow of the board. Dr. Oscar Sussman, of the New Jersey State Health Department, was authorized to draft the amendments which will be voted on by the general membership.

Dr. Vaughn A. Seaton, recent graduate of the Kansas State College, was awarded the $100 defense bond as the senior student submitting the best thesis on the subject of "Veterinary Public Health." This competitive award was extended for another year and will include both junior and senior students.

In order to facilitate the giving of certification examinations, the board voted to examine applicants in various areas of the country, utilizing the facilities of veterinary and public health schools.

This will abolish the examination each year at the AVMA annual meeting.

Election of counselors was postponed pending the adoption of the proposed constitutional revisions. All officers were re-elected for a three-year period. They are Drs. H. J. Stafseth, president; Ival A. Merchant, vice-president; and Martin D. Baum, secretary-treasurer.—*Martin D. Baum, Secretary.*

American Animal Hospital Association Midseason Meeting

Members of the American Animal Hospital Association met for luncheon and a business meeting on August 23, during the AVMA meeting. The main business was the acceptance into active membership of 14 small animal hospitals.

President Charles W. Bower, Topeka, Kan., discussed the program which the executive board has planned for the coming year. The annual meeting of the A.A.H.A. will be held at the Hotel Statler, Detroit, Mich., on May 4-7, 1955. Allied Laboratories and Radio Corporation of America have again offered television facilities for the Association's use in transmitting the scientific program. The program committee, under the chairmanship of Dr. Lendall K. Firth, Canton, Ohio, is planning a broad coverage of the program material with television.

There will be a series of regional meetings held by the A.A.H.A. One will be held at Burlington, Iowa, Nov. 10 and 11, 1954, jointly with the Midwest Small Animal Association. Everyone interested in small animal medicine is cordially invited to participate.—*Wayne H. Riser, Secretary.*

Association of Federal Veterinarians

The National Association of Federal Veterinarians met on August 23 in the Olympic Hotel with Dr. A. E. Wardlow, vice-president of zone 5, presiding and 43 members in attendance.

Dr. B. T. Simms informed the members that the work of federal veterinarians was held in high esteem by both Houses of Congress and, if the association was considering action on requesting increased appropriations for federal projects, such recommendation should be submitted within the next thirty to sixty days.

Drs. Leo M. Henry of Kansas City, T. J. Omohundro of Jefferson City, Mo., and F. C. Driver of St. Paul, Minn., were recommended to Dr. C. V. Metcalf, president, for appointment as chairman of the Committee on Resolutions and New Business to fill the vacancy created by the death of Dr. Dennis Coughlin.

The veto by the President of the United States of the raise for federal employees was discussed but it was noted that the President had stated a raise was justifiable. Many in attendance were of the opinion that the association should renew its efforts to secure raises during the next session of Congress.

General McCallam was given a vote of thanks for his activities during the past year on behalf of federal veterinarians and the securing of additional appropriations.

The failure of federal veterinarians to join and participate in meetings of state veterinary medical associations was discussed as well as the failure of different branches of the Agricultural Research Service to afford veterinarians an opportunity to attend meetings of constituent associations of the AVMA without being charged for leave.

There was a rather general feeling that more of the federal veterinarians should be members of the AVMA, and state and city veterinary medical associations, in order to keep them better informed of new developments in the profession.—*L. T. Hopkins, Secretary.*

Conference on Care of Laboratory Animals

The conference on Veterinary Care of Laboratory Animals was held on August 22, with 43 in attendance. Representatives were present from the Army, Air Force, research and medical institutions, state and federal agencies, and private enterprise.

Talks were given by Drs. H. N. Harkins (M.D.), Department of Surgery, University of Washington Medical School, on "The Use of Hogs in Medical Research"; L. K. Bustad, Radiological Science Department, Richland, Wash., on "The Care of Sheep Involved in Radiation Experiments"; A. C. Anderson, University of California, School of Veterinary Medicine, Davis, on "The Care and Management of an Experimental Dog Colony"; and O. A. Soave, California State Health Department, on "The Virus Diseases of Laboratory Animals."

Dr. Harkins mentioned as advantages in using hogs for surgical research, especially for vascular grafts, their rapid growth and maturation and their resistance to infection. He stressed the necessity for increased cooperation between medical and veterinary research.

Dr. Bustad covered some of the problems presented through the use of radioactive isotopes in research, including the disposal of feces and urine from the animals used, and protection of personnel handling these animals.

Dr. Anderson discussed the multitude of difficulties in developing a large research dog colony, and Dr. Soave stressed the virus infections which have caused difficulties in administering the Animal Care Law in California.—*O. A. Soave, Acting Chairman.*

American Association of Veterinary Bacteriologists

The third annual meeting of the American Association of Veterinary Bacteriologists was held on August 18 at Fort Collins, Colo. The 25 members in attendance participated in the discussions and demonstrations of new techniques.

At the business session, the group adopted the

constitution which had been presented at the previous meeting. The officers elected for the coming year were Drs. R. A. Packer, president; B. S. Pomeroy, president-elect; and C. H. Cunningham, secretary-treasurer.

According to the constitution, annual meetings will be held at or near the time of the AVMA meeting and at such place decided upon at the preceding meeting. The Association accepted an invitation from Dr. Pomeroy, University of Minnesota, to meet at the veterinary school there in 1955 at the time of the AVMA meeting in Minneapolis.—*L. C. Ferguson, Retiring Secretary.*

The Association of Veterinary Physiologists and Pharmacologists

The fifth annual meeting of the American Association of Veterinary Physiologists and Pharmacologists was called to order by President Stone in the Olympic Hotel, Seattle, August 23. Thirty-one new members were elected.

The recent four-day pharmacology teaching conference held at the State College of Washington on August 17 to 20 was discussed. The conference was well attended, with 13 participants presenting a total of 17 demonstrations or discussions. The Division of Veterinary Physiology and Pharmacology of the University of Minnesota was requested to sponsor a similar conference before the 1955 meeting of the AVMA. The time and the exact nature of the next conference will be left to the discretion of the Minnesota group.

Drs. A. F. Sellers and C. M. Stowe, both of the University of Minnesota, were elected president and secretary-treasurer, respectively.

The time of the next meeting of the association was left to the incoming officers.—*Paul A. Klarano, Retiring Secretary.*

Public Health Veterinarians

Thirty-five veterinarians were present for the special meeting of the conference of Public Health Veterinarians held on Monday, August 23.

The discussion was primarily about the agenda for the forthcoming annual meeting of the conference to be held in Buffalo, N. Y., Oct. 11, 1954, in conjunction with the annual meeting of the American Public Health Association. Those present were canvassed for their opinions regarding the proposed increase in dues to become effective following acceptance of the final draft of the constitution and bylaws. The need for defining and broadening the definition of "public health veterinarian" was discussed, and plans were outlined for increasing the growing membership.

President Ben H. Dean presided, assisted by the president-elect, Brig. Gen. Wayne O. Kester, V. C., U.S.A.F.—*James Lieberman, Secretary.*

The Women's Veterinary Medical Association

The eighth annual meeting of the Women's Veterinary Medical Association was held Tuesday, August 24, at the Olympic Hotel, with Dr. Jo Browne Walker acting as chairman. Eight members and two students were present. The group

Dr. Jo Browne Walker

expressed their appreciation of the preparation of the register of women veterinarians. The annual award of $50 for the most distinguished service to the organization was given to the retiring president, Dr. M. Lois Calhoun. Officers elected for the coming year were: Drs. Jo Browne Walker, Puyallup, Wash., president; Jane L. Williamson, Fair Lawn, N. J., eastern vice-president; Ordella Giesler, Lincoln, Neb., central vice-president; Catherine J. Stapp, Shoshone, Idaho, western vice-president; Hildegarde L. Seelig, Asheville, N. Car., southern vice-president; M. Lois Calhoun, East Lansing, Mich., treasurer; and Patricia O'Connor, Staten Island, N. Y., secretary—*M. Lois Calhoun, Treasurer.*

Meeting of Zoo Veterinarians

Seventeen veterinarians were present at this conference on Tuesday, August 24. Dr. E. J. Frick's paper on the gestation period of some of the wild animals was followed by Major Benjamin D. Fremming's paper on "A Fatal Case of Amebiasis with Liver Abscesses and Ulcerative Colitis in a Chimpanzee."

Representatives of Ciba Pharmaceutical Products, Inc., presented a film on the use of "serpasil" (*Rauwolfia serpentina*) in a monkey. Dr. Lester Fisher presented a report on a suspected case of lead poisoning in a gorilla, and Dr. K. L. Binkley reported on an outbreak of anthrax in zoo animals.

The group made a trip to the Seattle Zoo, inspecting the new hospital and quarantine station.

After a discussion period of problems in zoo work, the meeting was adjourned.—*Glen G. Crosbie, Chairman.*

Alumni Dinner Meetings in Seattle

Alabama Polytechnic Institute

The alumni of the School of Veterinary Medicine, Alabama Polytechnic Institute, and their guests held their annual banquet in the Olympic Hotel, Wednesday evening, August 25. We were happy to share the fellowship of this banquet with the alumni and guests of the School of Veterinary Medicine, University of Georgia. Dean Redding S. Sugg presided as toastmaster.

Other speakers of the evening were Dean T. J. Jones, University of Georgia, Dr. B. T. Simms, Col. J. R. Nettles, Drs. E. F. Thomas, and J. T. Tumlin.

Following the speeches, Colonel Nettles directed the group in singing school songs and a healthy "war eagle" battle cry. This 1954 alumni banquet was brought to a happy ending with the resolution that A.P.I. still is a wonderful place to call "Home".—*M. K. Heath.*

Colorado A. & M. College

The Colorado A. & M. veterinary alumni dinner was held in the Olympic Hotel, August 25, with about 180 alumni, wives, and guests present.

Dr. J. W. Harrison served as master of ceremonies. Congratulations and rounds of applause were given to Dean Floyd Cross, president-elect of the AVMA, and to Dr. N. J. Miller, of Eaton, Colo., as the recipient of the AVMA award. Dr. Jean Flint was commended for the excellent manner in which he conducted the election procedures. Others featured were Dr. M. R. Blackstock, ('10), the oldest graduate present, and his wife from Spartanburg, S. Car., and the class of 1924 which had a reunion.

Dean Cross spoke briefly of the spirit, fellowship, and loyalty that has always characterized graduates of Colorado A. & M. He stated that he would do all in his power to be worthy of, and to serve well in, the high office to which he had just been elected. He summarized the outstanding events occurring on the campus, outlined the activities and aims of the faculty, and discussed briefly the veterinary building program.—*Robert W. Davis.*

Cornell University

The annual dinner of the Cornell Alumni Veterinary Association was held on August 25 at the Olympic Hotel and was attended by nearly 70 people.

Colonel William E. Jennings arranged the program. Dr. R. C. Klussendorf was toastmaster and the song leaders were Drs. Gaylord Cook and "Al" Zeissig. Dr. Elmer Woelffer said grace, and a report of the Kansas State Veterinary College activities was presented by Dr. E. J. Frick. Dr. M. G. Fincher reported for Dean W. A. Hagan upon the state of affairs at Cornell, supporting his remarks with a few slides showing that great progress had been made in the construction of the new veterinary college at the east end of the campus.

The best part of the dinner was the opportunity offered for men from the early classes to meet with younger men and for classmates such as Drs. M. W. Sullivan, Marcellus, N. Y., and L. C. Pelton, Seattle, from the 1912 class to meet for the first time since graduation.—*M. G. Fincher.*

University of Georgia

Georgia had five alumni members present and had an enjoyable get-together jointly with the Alabama Polytechnic Institute alumni. Dean Sugg and I brought the group up-to-date on progress made at each institution.

As is true of all the new schools, we are handicapped by a shortage of numbers. However, we have the advantage of not being hampered by tradition. Suffice it to say that we had a delightful meeting.—*Thomas J. Jones.*

Illinois and Minnesota Alumni

The Illinois and Minnesota alumni met jointly for dinner on August 25, at the annual convention in Seattle. Four graduates from Minnesota and one from Illinois were present. Dean Emeritus and Mrs. G. H. Hart of Davis, Calif., were guests. Obviously, the small group talked about the future of veterinary education at Minnesota, Illinois, and California. Though the attendance was small, optimism was expressed regarding future dinner meetings. We had a nice round-table discussion before adjournment.—*Robert Graham.*

Iowa State College

A total of 120 persons — 65 veterinary alumni and their families — attended the Iowa State College banquet. Following the dinner, Dean Merchant discussed the various developments at the college, including the formation of the Iowa State College Veterinary Medical Alumni Association, which 800 of the alumni have now joined; the present status of the diagnostic laboratory building, an artist's sketch of which was passed around; new appointments on the staff; and various projects of each department. The cooperation of President Hilton and Provost Jensen toward veterinary medicine was mentioned and the athletic situation was reviewed.

Dean H. W. Orr of the Oklahoma A. & M. School attended, since that school had no meeting. —*I. A. Merchant.*

Kansas State College

The Kansas State College alumni dinner at the Benjamin Franklin Hotel in Seattle was attended

by 126 persons. Dean E. E. Leasure presided and showed some 50 kodachrome slides of campus scenes and persons.

Recognition was given to Brig. Gen. Elmer W. Young, chief of the Veterinary Corps, U. S. Army, a 1952 alumnus who received his stars on August 19. Tribute was paid to Dean Emeritus R. R. Dykstra and Professor Emeritus J. H. Burt in the form of a letter signed by the attending veterinarians.

Individuals called upon for a few remarks were Dr. C. A. Brandly, University of Wisconsin; Brig. Gen. W. O. Kester, V.C., U.S.A.F.; and Drs. Louise S. Rabstein, Frederick, Md.; L. H. Winn, Whitewater, Wis.; O. J. Rollag, Albuquerque, N. M.; E. C. Jones, Norden Laboratories, Lincoln, Neb.; E. M. Dobbs, Los Angeles, Calif.; and E. R. Frank, Kansas State College.—*E. E. Leasure.*

University of Missouri

For the first time at an AVMA meeting, alumni of the University of Missouri held a get-together.

Fourteen persons, including alumni, their wives, and children, a student and his wife, and faculty members, were present. Dean A. H. Groth reported on changes and developments within the veterinary school and elsewhere on the campus.—*A. H. Groth.*

Ontario Veterinary College

More than 100 alumni, wives, children, and friends of the Ontario Veterinary College assembled for the annual alumni banquet in the Plaza Room of the Benjamin Franklin Hotel on August 25. Principal T. Lloyd Jones was in the chair. Greetings were brought to the gathering by Dr. Ronald Gwatkin, president of the alumni association, and by several of those present from widely separated centers throughout North America. All of those who spoke expressed feelings of a warm attachment for their alma mater.—*T. Lloyd Jones.*

University of Pennsylvania

A group of 65 alumni and their wives gathered in the New Washington Hotel, Seattle, on Wednesday evening, August 25.

Dr. Gerry Schnelle, president of the alumni society, presided at a short but informative round of introductions and discussions. Brigadier General James A. McCallam (Ret.) immediate past-President of the AVMA; Dr. J. G. Hardenbergh, executive secretary of the AVMA; Dr. Samuel F. Scheidy, chairman of the Executive Board of the AVMA; and other notable guests, were present.

Dr. M. W. Allam, dean of the School of Veterinary Medicine, showed lantern slides of the New Bolton Center, a 220-acre research facility, which many of the western alumni had not had the opportunity to see. Other slides showed certain areas of improvement at the School of Veterinary Medicine in Philadelphia and the talk was ended with a few slides of the new research installation at Palo Alto, Mexico, D. F.—*M. W. Allam.*

Texas A. & M. College

The Texas alumni dinner was held in the penthouse Garden Room of the Benjamin Franklin Hotel. An overflow crowd of approximately 60 persons attended, including the president of the Texas Veterinary Medical Association, Dr. H. H. Greenlee; the president-elect, Dr. R. T. Hander; and the executive secretary, Dr. P. B. Blunt. Also in attendance on a quasi-honorary basis were Texas A. & M. benefactor, Dr. W. G. Brock (OSU '11), Dallas, and an adopted Texan, Mr. Peter Jans of Evanston, Ill. Dean W. W. Armistead gave a brief report on progress and plans for the School. Dr. Blunt requested suggestions for making the AVMA meeting at San Antonio in 1956 a complete and memorable success.—*W. W. Armistead.*

Washington State College

The meeting of the alumni group of Washington State College was held in the Olympic Hotel with over 400 persons present.

Dean E. C. Stone discussed improvements made at the College of Veterinary Medicine during the past year and outlined plans for the future. Dean Emeritus E. E. Wegner introduced alumni who were graduated between 1902 and 1925. Dean Emeritus J. E. McCoy spoke to the group relative to changes he has observed in veterinary education during his long tenure as a member of the faculty at the College and expressed his thanks to the alumni association for the presents given him upon his retirement.

One of the highlights of the program was the showing of a film by Dr. Ernest Willers, territorial veterinarian of Hawaii. This was a color-sound film dealing with recent volcanic eruptions in Hawaii. The program also included the showing of the film, "This is W.S.C.," bringing to the alumni interesting scenes of campus activities and showing the development of the building program. —*E. C. Stone.*

More on Chlorophyll Deodorizing.—Chlorophyll is incorporated in products to deodorize the breath, including that of alcoholic drinkers. This could be accomplished only if the alcohol was destroyed *in vivo*, which would disappoint the drinker by making him sober, or by preventing the elimination of the alcohol through the lung, which would increase his intoxication. Neither has been reported and all controlled tests have indicated its ineffectiveness.—*J.Am.M.A., April 3, 1954.*

Male Pseudohermaphroditism in a Toy Terrier

R. S. BRODEY, D.V.M.; J. E. MARTIN, V.M.D.; D. G. LEE, V.M.D.

Philadelphia, Pennsylvania

CASES OF pseudohermaphroditism have been infrequently recorded in veterinary medical literature.

This report concerns a 10-month-old Toy Terrier cross which was referred to the University of Pennsylvania veterinary hospital on Feb. 27, 1954. The owner had observed a reddened mass protruding through the vulvar labia. This swelling was present when the pup was purchased eight months before, and it continued to enlarge as the dog grew older. At the time of purchase, the animal was assumed to be a female. A sanguineous vaginal discharge of seven days' duration was observed by the owner one month before the dog was brought to the hospital.

Clinical examination revealed what appeared to be a female Toy Terrier with a greatly enlarged clitoris containing a bone homologous to the os penis. This structure was 3.0 cm. in length and had a bulbous swelling at its base, which arose from the fossa clitoridis on the vaginal floor about 1.5 cm. caudal to a normal urethral meatus. After careful physical examination, no other abnormalities were detected. A tentative diagnosis of pseudohermaphroditism was made, and the dog was hospitalized for laboratory studies and surgery.

A lateral radiograph of the thorax and abdomen was negative. A routine hemo-

Instructor in surgery (Brodey), assistant professor of physiology and pharmacology (Martin), and professor of anatomy (Lee), School of Veterinary Medicine, University of Pennsylvania, Philadelphia.

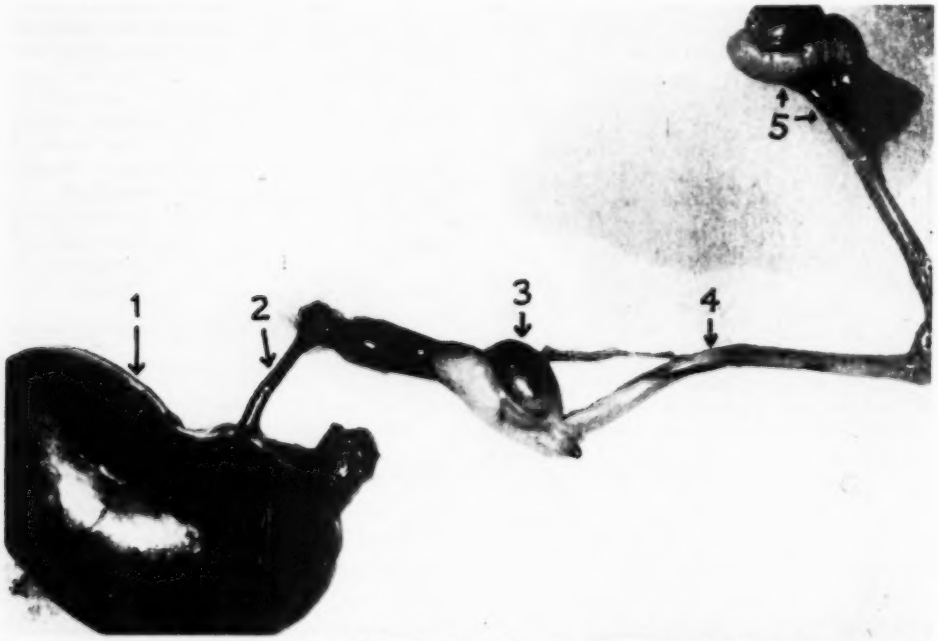

Fig. 1—Organs found on laparotomy of Toy Terrier with male pseudohermaphroditism: (1) right kidney; (2) ureter; (3) right gonad; (4) right uterine horn; (5) left gonad and uterine horn.

gram on March 2 revealed the following:

Hb.	10.9 Gm./100 cc.
r.b.c.	6,270,000
w.b.c.	7,050
Differential	
Neutrophil	57.0%
Lymphocyte	36.0%
Monocyte	7.0%

A 24-hour urine sample was collected from this dog and from a normal animal. Chemical analysis revealed that the 17-ketosteroid excretion in the urine amounted to 1.5 mg. per day in the pseudohermaphrodite and 1.4 mg. per day in the control animal. Both of these values are considered to be within the normal range for the dog.

On March 2, an exploratory laparotomy was performed. A small uterus was present, and a gonad which grossly resembled a testis with its attached epididymis was located at the end of each uterine horn (fig. 1). The right gonad was midway between the posterior pole of the kidney and the internal inguinal ring, whereas the left gonad was firmly anchored to the left inguinal ring by a fibrous band of tissue. On gross examination, both adrenal glands appeared normal. During the removal of the right gonad, the ureter was accidentally severed, and a nephrectomy was performed. After extirpation of the gonads and uterus, the laparotomy wound was sutured. A dorsal episiotomy was performed to facilitate resection of the hypertrophied clitoris with its contained bony mass.

The dog made an uneventful recovery, except for a temperature elevation of 103.2 F. and emesis on the third postoperative day. A hemogram at this time revealed a leukocyte count of 24,000 and a mild anemia. The dog was discharged three days later with a hematinic containing cobalt and iron for continued therapy.

Serial sections were made of both gonads, and every tenth section was stained and mounted for histological examination. A study of the sections revealed that both gonads were testes with an epididymis attached to each. No evidence of coexisting ovarian tissue could be found in any of the sections studied. The seminiferous tubules were lined with numerous tall, vacuolated Sertoli cells (fig. 2). Spermatogonia were few in number and completely inactive. Attached to the caudal pole of each epididymis was a uterine horn with an anestrous endometrium.

DISCUSSION

Pseudohermaphroditism is characterized by the presence of the gonads of only one sex and is associated with variable abnormalities of the external genitalia.[1] The classification of male and female pseudohermaphroditism is dependent solely upon the type of gonads present and is entirely independent of the character of the gonads. Since both gonads were testicles, this animal was a male pseudohermaphrodite.

True hermaphroditism, as reported by Lee and Allam[2] is characterized by the presence of both testicular and ovarian tis-

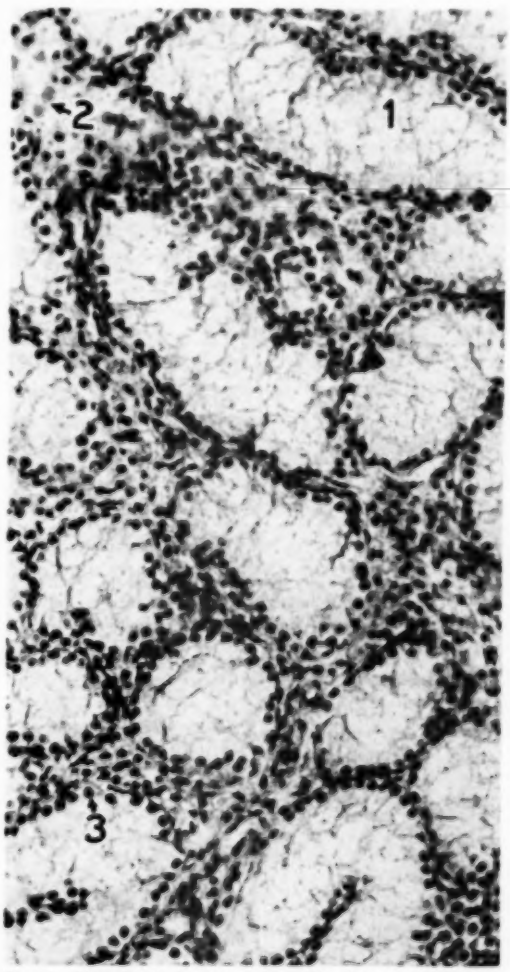

Fig. 2—Histological section (x 200) of a gonad of the Toy Terrier: (1) vacuolated cytoplasm of Sertoli cells lining the seminiferous tubule; (2) interstitial cells of Leydig; (3) spermatogonium.

sue in the same animal and is usually accompanied by certain abnormalities of the external genitalia which are apparently unrelated to disease of the adrenal cortex.

Female pseudohermaphroditism is due to adrenal cortical hyperfunction which is usually the result of bilateral adrenal cortical hyperplasia or adenoma. The cause of male pseudohermaphroditism remains obscure but appears unrelated to hyperplasia of the adrenal cortex. In this case report, the normality of the adrenal glands on gross inspection, along with a normal urinary 17-ketosteroid level, indicated that adrenal cortical hyperfunction was not present in this animal.

The histological findings suggested hyperplasia of the Sertoli cells in both gonads, and that these cells were actively secreting. Burrows and Horning[3] state that, in dogs, the Sertoli cells are thought to be the principal testicular source of estrogen, and that superabundance of lipoid has been observed in some instances of cryptorchidism. A high estrogen output by the Sertoli cells could have resulted in the development of the müllerian ducts and the external genitalia, but in this case the presence of an anestrous endometrium indicated that, at the time of surgery, the endometrium was not under estrogenic stimulation. The vaginal bleeding observed by the owner one month previously may have been the result of estrogenic action on the uterine mucosa at that time.

SUMMARY

A case of male pseudohermaphroditism has been described in a 10-month-old Toy Terrier. This animal appeared to be a female on external examination, but laparotomy revealed that both gonads were testes instead of ovaries. The etiology of this condition is unknown, but in this case may be related to hypersecretion of estrogen from the Sertoli cells in the cryptorchid tests.

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[1]Soffer, L. J.: Diseases of the Endocrine Glands. Lea and Febiger, Philadelphia (1951): 314-315.

[2]Lee, D. G., and Allam, M. W.: True Unilateral Hermaphroditism in a Dog. Univ. Pennsylvania Bull., Vet. Exten. Quart., No. 128, (Oct. 27, 1952): 142-147.

[3]Burrows, H., and Horning, E. S.: Oestrogens and Neoplasia. Charles C. Thomas, Springfield, Ill. (1952): 20-21.

How Spermatozoa Move in the Ewe

Normal rams' sperm requires eight hours to reach the upper part of the fallopian tube during estrus. That sperm motility is not important in this movement was not found true in the ewe. When 3 ewes were inseminated intracervically with heat-killed sperm, the sperm were still there when the ewes were slaughtered eight hours later. When 3 other ewes were similarly inseminated, then seminal plasma was added and the ewes were served by a vasectomized ram, the inseminated sperm were again found at the injection site one hour later. However, since healthy semen makes little ascent in the diestrus ewe, the female organs must play some part in its movement. This may be largely passive and merely a viscosity change in the cervical mucus.—*Vet. Bull., Aug., 1954.*

Treating Wing Fractures in Birds

Wing fractures in canaries, parakeets, and other small birds usually involve the humerus, radius, and ulna, and the wing usually droops.

When the fracture is reduced manually, the wing is placed in a normal position but with its tip resting on the tip of the opposite wing where it is held with adhesive tape. The first strip of tape, ½ inch wide, is placed transversely around the body near the anterior portion of the wing; a second strip is then attached to the first and carried caudally along the dorsal line to the tips of the wings, where it is turned under and held in place by a third narrow piece placed transversely and completely around the wings, just anterior to their tips. The tape should be allowed to remain for at least two weeks.—*New York Vet. News, July, 1954.*

Uterine Rupture in a Cow

A 4-year-old cow, pregnant for seven months, fell on ice and for a week afterward ate little and walked slowly and stiffly. Her temperature was 102.5 F., her pulse 80. Upon laparotomy, a live fetus was found among the viscera, with the fetal membranes still attached through a tear in the left horn of the uterus. The fetus and as much of the placenta as possible were removed, antibiotic tablets placed in the uterus, the corpus luteum dislodged, the

operation completed, and 3 million units of penicillin given intramuscularly. The cow made a slow but uneventful recovery.—*Canad. J. Comp. Med., Aug., 1954.*

[Ruptures in the dorsal wall of the body of the uterus in 5 cases of bovine dystocia are recalled, 4 in first-calf heifers. Three were breech presentations (a significant percentage), in 2 of which the injury probably occurred when, without adequate repulsion, a hock was forced through the uterine "roof" while the appendant foot was being drawn into the pelvis.—ED.]

Medical Therapy for Hydrops Amnii

A 4-year-old cow with hydrops amnii, at the University of Georgia veterinary clinic, was relieved by hormone therapy. The day after she was given 300 mg. of stilbestrol intramuscularly, the cervix opened sufficiently for the fetal membranes to rupture, the loss of large quantities of fluid producing a slight shock. The stilbestrol was repeated that day and 10 cc. of posterior pituitary extract was given the next day. The third day, when the partially opened cervix would not dilate, it was incised dorsally and the calf was delivered easily. Antibiotic and hormone therapy was continued, and the placenta was removed manually four days after calving. The cow slowly recovered.—*Southeast. Vet., Spring, 1954.*

New Anesthetic Act in Britain

Effective Sept. 1, 1954, a new law in Britain makes it unlawful to perform certain operations on horses, cattle, dogs, and cats without an anesthetic. The law states that all surgical operations upon animals involving pain, with a few minor exceptions, should be carried out under an anesthetic. It will be left to the veterinary surgeon which specific agent he will use and how it will be administered. The law excludes operations performed on any bird, fowl, fish, or reptile. The exception for using an anesthetic on animals is found in the First Schedule, Section 1, under excepted operations:

Excepted Operations

1) Any experiment duly authorized under the Cruelty to Animals Act, 1876.

2) The rendering in emergency of first aid for the purpose of saving life or relieving pain.

3) The docking of the tail of a dog before its eyes are open.

4) The amputation of the dewclaws of a dog before its eyes are open.

5) The castration of any male dog before it has reached the age of 3 months or of any male cat before it has reached the age of 6 months.

6) The castration of a male animal specified in the following table before it has reached the age so specified, that is to say—

horse	12 months.
ass or mule	12 months.
bull	12 months.
sheep	12 months.
goat	3 months.
pig	7 months.

7) Any minor operation performed by a veterinary surgeon or veterinary practitioner, being an operation which, by reason of its quickness or painlessness, is customarily so performed without the use of an anesthetic.

8) Any minor operation, whether performed by a veterinary surgeon or veterinary practitioner or by some other person, being an operation which is not customarily performed only by such a surgeon or practitioner."—*Vet. Rec., Aug. 14, 1954.*

Propylene Glycol Therapy in Ketosis

When 8 dairy cows, 2 to 7 years old, developed typical ketosis seven to forty-four days after parturition, they were given daily doses of either 125 Gm. or 250 Gm. of propylene glycol for four days, and all recovered. With the larger dosage, the appetite was usually approaching normal within seventy-two hours while the 3 given the smaller dosage recovered more slowly. In eight days, 1 heifer suffered a relapse associated with estrus and a sudden change of feed, but recovered after re-treatment.—*Canad. J. Comp. Med., Aug. 1954.*

Semen Distribution in Doe Rabbits

One hour after coitus, 85 million sperm were found in the cranial half of the vagina of a female rabbit, 9 million in the caudal and 0.5 million in the cranial halves of the uterine horns, and none in the fallopian tubes. At four hours, 19 million sperm remained in the vagina, 42 million were found in the cranial half of the uterus, and others were in the tubes, the number there reaching 5,000 at six hours. The number in the caudal half of the uterus did not change up to twenty-eight hours. The cervix and the uterotubal junction were considered the main bar-

riers to sperm movement in the rabbit.—*Vet. Bull., Aug., 1954.*

Inhibiting Estrus with Progesterone

Progesterone has been shown to inhibit estrus and ovulation in both sheep and cattle, with a satisfactory rate of fertilization occurring at the subsequent estrous period. Therefore, a similar attempt was made in swine. (Having all pigs in the herd born about the same time is usually a definite economic advantage.)

Forty-six gilts were injected with 100 mg. of progesterone in oil, daily, from the tenth or fifteenth day after estrus to the twenty-eighth day. Another 9 gilts were given 25 mg. daily from the fifteenth to the twenty-eighth day. The 33 control gilts were similarly injected with the oil only. While the results were variable, the progesterone inhibited estrus in all gilts during treatment; the subsequent estrous periods averaged about seven hours shorter, and the ovulation rate was increased an average of 3.2 ova. Also, an increased number of ova were apparently lost in the peritoneal cavity in treated gilts, possibly due to increased activity of the fimbria, the fertilization rate in the treated gilts being only about half that of the controls.—*J. Anim. Sci., Aug., 1954.*

The removal of wattles, the small appendages which hang from the neck or head of many goats, is recommended since they are subject to injury and infection.——*Dai. Goat J., Sept., 1954.*

Removal of a Huge Abdominal Tumor

A study was made of the effects of the sudden releases of intra-abdominal pressure when a 184-lb. ovarian tumor, the thirteenth largest on record, was removed from a woman. The author believes splanchnic shock in such cases is by no means constant and when it does occur, it is usually four to twenty-four hours later. Therefore, slow decompression is poor prophylaxis. This operation required three hours.—*J. Am. M. A., Sept. 4, 1954.*

Therapeutic Insemination.—A movement is on foot among physicians to adopt the term "therapeutic insemination" rather than artificial insemination, since the former seems more genteel, less harsh, and smacks less of the barnyard. In medicine, it is in fact a therapeutic measure.— *Cur. M. Digest, Sept., 1954.*

Sex and Species Affect Drug Action

When rats are given hexobarbital, the females sleep four or five times as long as males. However, when females are also given testosterone, they sleep like males; and males when given estradiol, sleep like females. Also when proportional doses of this drug are given to man and mouse, man dozes for several hours while the mouse sleeps only ten minutes.—*U. S. Public Health Service.*

Debeaking chicks at 1 day of age eliminated feather picking, improved the carcass grade, and did not affect the average weight or mortality.—*Poult. Sci., March, 1954.*

Electrical Stunning for Slaughter

A large, tonglike apparatus which grasps the temporal regions of the animal's head and produces an epileptic-like unconsciousness for one minute or longer is in use in some slaughtering establishments in Europe. The animal's head must be restrained and the current adjusted to the size of the animal and the thickness of the tissues over the cranium. An apparatus tried years ago provoked muscular spasms which caused the animal to stand rigidly for a few seconds then crash to the floor and kick violently, thus often producing injuries.

The effect of this improved apparatus is an immediate flexing of the limbs, the animal sinking to the ground, after which the limbs are spasmodically extended. If the animal is not then immediately slaughtered, respiration will commence in one minute and, in seven to ten minutes, it will again be up and normal. If immediately slaughtered, animals bleed well because of the muscular tone and the continuing heart beat.—*Vet. Rec., Aug. 28, 1954.*

CLINICAL DATA

ACTH Valuable in Case of Acute Coliform Mastitis

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OCCASIONALLY, the author has encountered cases of acute or peracute bovine mastitis due to coliform bacteria or *Micrococcus pyogenes* var. *aureus* which failed to respond to conventional chemotherapeutic or antibiotic treatment. In 1953, such an animal did not respond to antibiotics alone, but when adrenocorticotrophic hormone (ACTH) was injected concurrently a prompt improvement occurred.

CASE RECORD

The cow, a 10-year-old, 1,200-lb., high-producing Ayrshire, had experienced two attacks of acute coliform mastitis, acetonemia, retained placenta, foot rot, and sterility. The acute attack of mastitis reported here began on May 1, 1953, one month after parturition. Examination revealed a temperature of 104 F.; respiration, 30; pulse, 76; and anorexia and diarrhea. The right front quarter was hard, sensitive, greatly enlarged, and yielded coliform organisms in the thick, yellowish secretion. Milk production had dropped suddenly from 50 to 20 lb. per day.

An aqueous solution containing 2 Gm. of terramycin ® was injected intramuscularly and 426 mg. was infused into the quarter in an ointment. The quarter was bathed with cold water every four hours but was not milked. When there was no improvement in twenty-four hours, this treatment was repeated.

On the third day, the cow's condition was worse (temp., 105 F.). She was, therefore, given 5 cc. of posterior pituitary extract intravenously to stimulate "let-down" of the purulent material blocking the mammary ducts. She was then milked and 20 cc. of an oil suspension of PSSS—10,000 I. U. of procaine penicillin, 10 mg. of streptomycin, 75 mg. of sulfisoxazole, and 75 mg. of sulfathiazole per cubic centimeter—was instilled and left for thirty-six hours. Sulfonamide therapy was also given, intravenously and *per os*, with local applications of hot water and udder ointment. During the next two days, there was a slight improvement (temp., 103 F.). On the sixth day, this treatment was repeated, with the addition of 250 mg. of antihistamine subcutaneously. The mucoid form of *Escherichia coli* was isolated in pure culture (fig. 1) from the now serous secretion.

On the seventh day, when the cow was much worse (temp., 108 F.), the streptomycin therapy recommended by Schalm and Woods[1] was started. Three times, at twelve-hour intervals, 5 Gm. of dihydrostreptomycin sulfate was given intramuscularly and 5 Gm. in 250 cc. of water was infused into the quarter. Supportive therapy included 500 cc. of 40 per cent dextrose solution intravenously and 6 gal. of water pumped into the rumen. This produced only a slight remission of symptoms.

On the ninth day, 2.5 Gm. of aureomycin ® was given intravenously and a continuous intravenous infusion of 5 per cent dextrose in physiological saline was started.

The tenth day, the cow was very weak, frothing at the mouth, had albuminuria, and a total leukocyte count of 2,080 (mostly lymphocytes and monocytes). The prognosis was grave, especially because of the agranulocytosis. The patient was, therefore, given 4 Gm. of terramycin intraperitoneally, 1,000,000 units of vitamin A orally and, to combat stress, 300 veterinary units of

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ACTH,* half intramuscularly and half subcutaneously. In twelve hours, the response was remarkable—temperature, 102 F.; physical appearance, good; pulse, 60; and respiration, 20. Within twenty-four hours she was eating and drinking. During the next four days, she improved rapidly and her milk production rose from 1 to 12 lb. per day. Vitamin A and gastric stimulants were given, but the continuous intravenous therapy was discontinued when 6,000 cc. had been infused.

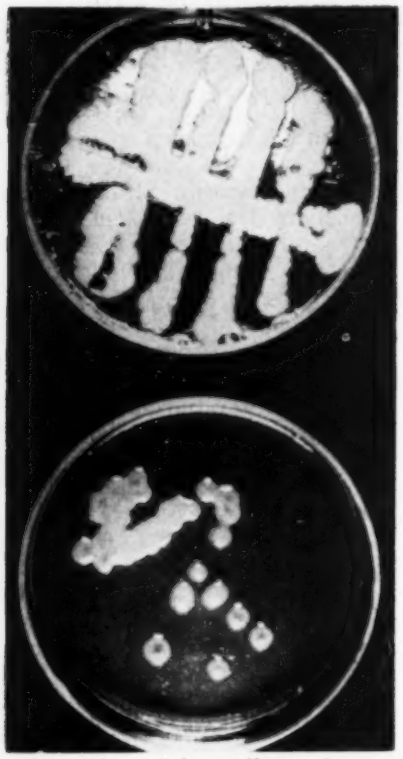

Fig. 1—Escherichia coli (mucoid) organisms on 5 per cent blood agar (top) and on MacConkey agar.

On the fifteenth day, a relapse occurred—the cow was recumbent and dull, with a temperature of 106.6 F., but the total leukocyte count was normal (9,220). She was given 20 Gm. of dihydrostreptomycin sulfate, 6,000,000 I.U. of long-acting penicillin, and 300 A.V.U. of ACTH intramuscularly. The next day she was up, bright, eating and drinking, and her temperature was 100.6 F. She was given 2 Gm. of dihydrostreptomycin and 3,000,000 I. U. of penicillin intramuscularly, 500 cc. of a calcium gluconate compound solution intravenously, and a cud was transferred to counteract a probable deficiency in the rumen flora. Two days later, she was still improving satisfactorily. The quarter remained enlarged and edematous but bacteriologically the serous secretion was negative. A combined antibiotic ointment was infused and she was not milked again. She remained well for nine days, then was slaughtered on May 27. Marked fibrosis of the affected quarter was the only lesion observed.

*Adrenomone—Armour Veterinary Laboratories, Kansas City, Kan.

DISCUSSION

Apparently, the ACTH was responsible for the great improvement on two occasions. It was used with terramycin the first time but with dihydrostreptomycin and penicillin later; there had been no progress when these antibiotics were used previously alone, though in slightly smaller dosage. Such a synergistic effect has been noted in human beings with overwhelmingly severe infections.[2] Unfortunately, the causative organism in this instance was not tested for antibiotic sensitivity.

The ACTH may have stimulated an adrenal cortical hormone output which was necessary for the cow to adjust to the condition of stress. Sayers[3] thinks that adrenal cortical secretions may be reduced greatly by the intoxication resulting from severe infection.

Theoretically, the cost of treating this animal was $185 — $115 for drugs and $70 for the clinician's and attendant's time. This, with the cow's salvage and replacement values, brought the owner's loss to $385. Nevertheless, in certain severe mastitic infections it would appear that early use of ACTH with antibiotic(s) would be highly indicated, or, the combined treatment could be reserved for cases which do not respond to antibiotic(s) alone.

SUMMARY

In a case of acute bovine mastitis due to *Escherichia coli* (mucoid form), adrenocorticotrophic hormone was of great value in promoting recovery. It alleviated stress and, in combination with intensive antibiotic and supportive therapy, apparently created a synergistic action which suppressed a hopelessly severe infection.

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The Brucellosis Ring Test

In Wisconsin, 61,403 dairy herds have passed three or more negative ring herd tests for brucellosis. To check on the accuracy of this test, 416 of these herds, including 9,654 cows, when blood-tested, revealed only 17 reactors in 16 of the herds. This is a herd infection of 3.84 per cent and an animal infection of 0.18 per cent. Since the blood of most of the 17 cows reacted only in low dilutions and since 16 of them were in vaccinated herds, it is doubtful that any were actually infected. It cost the State of Wisconsin $3,368 to blood-test all animals in the 416 herds but only $178 for the single ring testing of these same herds.—*Hoard's Dairyman, June 10, 1954.*

A cholera-like disease of swine with a three-day incubation period and death common by the seventh day has occurred in several communities in the western cornbelt. Standard doses of hog cholera antiserum given with 5 cc. of tissue filtrate will not give protection.—*H. C. Smith, D.V.M., Iowa.*

Bovine Infectious Transport Pneumonia.—In Germany, veterinary pathologists have suggested that either "infectious transport pneumonia" or "infectious bronchopneumonia" be used instead of "hemorrhagic septicemia", as required by the Contagious Diseases of Animals Act, when reporting such cases regardless of whether bipolar organisms are isolated from the animals.—*Vet. Bull., July, 1954.*

Transmission of Scabies to Man.—Two persons developed itching and skin lesions three weeks after purchasing a dog affected with bald spots and itchiness. Sarcoptes mites were found on the dog but not on the patients. In another instance, a couple contracted scabies from a stray cat which they allowed to sleep in their bed. All recovered following suitable treatment.—*J.Am.M.A., Feb. 20, 1954.*

Oxytocic Principle in Goat Mastitis.—Theoretically, oxytocin, by increasing the withdrawal of debris from the mammary gland, should be useful therapy in mastitis. However, when used under experimental conditions, either alone or with penicillin, it had no affect on experimental mastitis produced in goats.—*Vet. Rec., June 26, 1954.*

Vaccination for leptospirosis should have merit when a herd first becomes infected; the infection, disseminated in the urine, spreads slowly except when cattle are closely confined, as in the winter.—*C. J. York, D.V.M., Indiana.*

Hyaluronidase for Urinary Calculi

Hyaluronidase, given subcutaneously, theoretically should result in the production of urine colloids which should inhibit the development of crystalline matter. Before this theory was thoroughly investigated, a glowing and inaccurate report on its use for kidney stones appeared in a popular lay magazine, resulting in many patients demanding hyaluronidase therapy.

That this is not without danger, since too small a dosage may facilitate stone formation, was demonstrated in a patient being treated with hyaluronidase, in which a large renal calculus developed in a kidney from which a calculus had been removed two months previously. The rapid recurrence would indicate that hyaluronidase facilitated the calculus formation.—*J.Am.M.A., Feb. 27, 1954.*

Osmosis and Rumen Absorption.—The osmotic relationship between rumen content and the blood of a sheep was studied. Sodium and potassium were absorbed from the rumen when their concentration exceeded that in the blood and vice versa. Also, under normal conditions, water may be absorbed from the rumen.—*Vet. Bull., March, 1954.*

Hot Weather Weight Loss in Sows.—When nursing sows were kept for fifty-six days in heat-controlled rooms, they lost up to 42 per cent of their weight when the temperature was 90 F. and 26 per cent when it was 80 F.—*Successful Farming, July, 1954.*

Coronary Embolism in Valvular Bacterial Endocarditis in Two Dogs

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VALVULAR ENDOCARDITIS of bacterial origin is a well-known entity in man and swine, but it is not a common occurrence in other species. The bacteria usually found in human cases are *Streptococcus viridans* and in the porcine species, *Erysipelothrix rhusiopathiae*.

Characteristic of bacterial endocarditis is the frequent development of embolic processes, particularly in the kidneys and spleen. As the coronary blood volume is large in comparison to that of other arteries, one would expect that embolism of the coronaries would not be an exceptional occurrence. It is a prevalent opinion, however, that coronary embolism is an infrequent and unimportant sequence to valvular bacterial endocarditis. Saphir[7] stated in 1932 that "Embolism of a coronary artery is a very unusual occurrence"; and in 1953 Boyd[2] wrote in a chapter on coronary artery occlusion: "A rare cause is an embolus from a vegetation of the aortic valve." Hall, in Anderson's[1] "Pathology," stated that "embolism is the least frequent of the major causes of coronary occlusion." Among the various reasons given to support this contention are: (1) The right angle between the aorta and the coronary arteries, together with the rapidity of the systolic blood stream, should prevent emboli from entering the narrow lumina of the coronary arteries; (2) the marked difference of the calibers of the aorta and the coronary arteries; (3) a thrombus fragment dislodged during systole should have passed well out of the way by the time the coronary arteries commence their diastolic filling;[6] and (4) it has been postulated that the aortic cusps cover the coronary ostia during systole.[2] This latter point can be disregarded since the filling of the coronaries takes place during diastole and the cusps are not collapsed against the aortic wall during the systolic expulsion. On the contrary, the valves stand out in the stream, creating an eddy behind them.

Perry *et al.*[6] found a thrombus or embolus in the coronary arteries in 20 of 52 cases of subacute bacterial endocarditis. All cases with endocarditis of the left side showed some type of myocardial lesion, the miliary infarct being seen in 90 per cent of the cases.

In a recent paper, Brunson[4] attempted to clarify the controversial point of the frequency of coronary embolism in bacterial endocarditis. He meticulously examined the coronary arteries in 9 consecutive cases of bacterial endocarditis in man, and convincingly demonstrated coronary embolism in all 9 cases.

The purpose of this report is to demonstrate the presence of several embolic processes in the cor-

From the Department of Pathology (S. W. Nielsen) and Division of Small Animal Medicine (L. B. Nielsen) Ontario Veterinary College, Guelph.

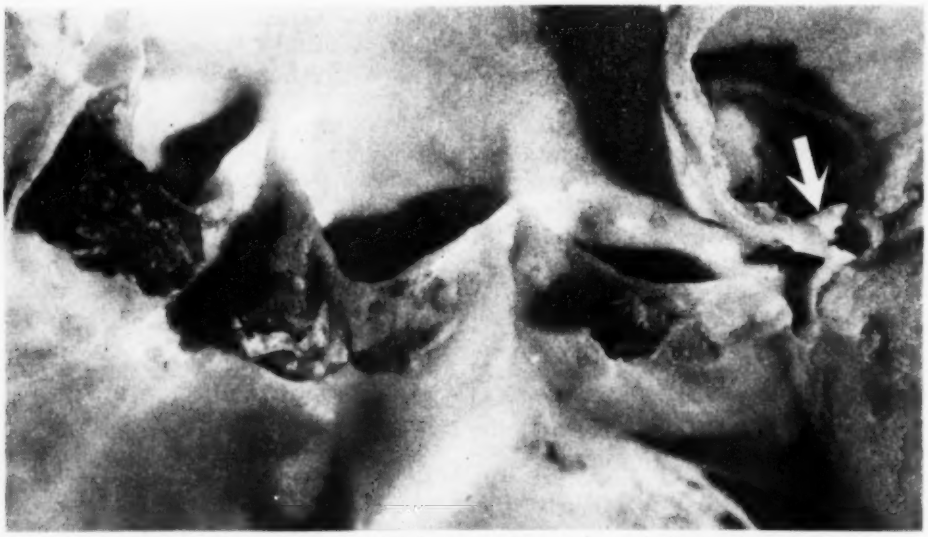

Fig. 1—The opened aortic ostium showing the ventricular surface of the semilunar valves covered with friable, brownish vegetations. A coronary ostium (arrow) can be seen at the right side of the right aortic valve (case 1).

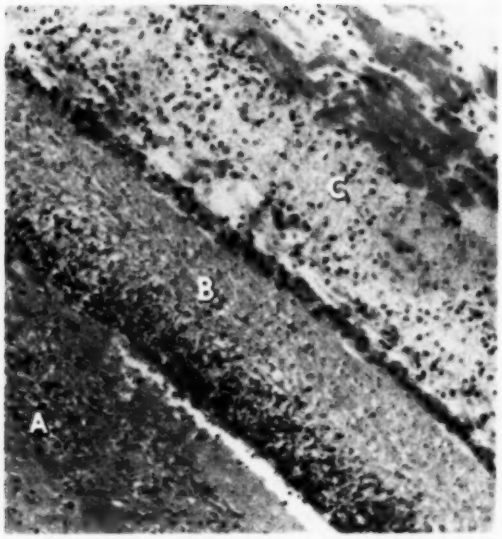

Fig. 2—A septic embolus (a) in an intramural branch of the coronary artery causing occluding thrombosis, showing (b) necrotic arteritis and (c) acute inflammation of the surrounding myocardium (case 1).

Fig. 3—A bland embolus in a subepicardial vessel containing a central mass of thrombus debris with fibrin and pyknotic white cells (case 1).

Fig. 4—A miliary focus of acute embolic suppurative myocarditis of the left ventricular wall, resembling a Bracht-Wachter body (case 1).

onary vessels of 2 dogs with subacute bacterial endocarditis affecting the aortic valve in 1 and the mitral valve in the other. The first animal died suddenly from myocardial failure, and the other was destroyed because of severe debilitation.

REPORT OF CASES

Case 1.—A 3-year-old male Great Dane was presented to the Small Animal Clinic of

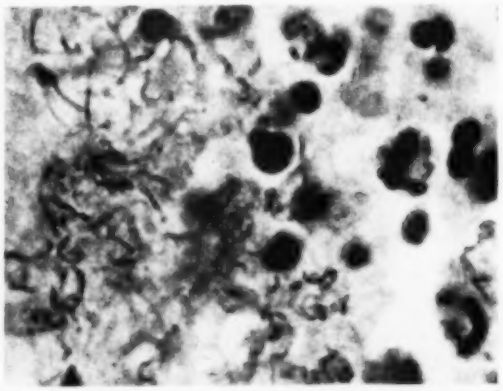

Fig. 5—Detail of a septic embolus in an intramural branch, stained with Goodpasture's stain, showing neutrophils and gram-positive filamentous rods suggestive of Erysipelothrix (case 1).

the Ontario Veterinary College, on Aug. 10, 1953, with the following history:

At 10 months of age, rickets was diagnosed by x-ray examination. When the dog was 13 months old, it was hospitalized for distemper with pulmonary complications. The dog had always appeared thin and moved rather slowly, particularly during the past six months. It seemed most comfortable in the standing position and for a month prior to death it would almost fall asleep standing up. At that time, examination of the blood showed a normal urea nitrogen, a total white cell count of 15,000, and a normal differential count. Two days prior to death, a serosanguineous nasal discharge was noticed for approximately twenty-four hours, and the dog had a temperature of 105.0 F. and a diffuse swelling of both front legs that evening. When the dog was taken to a veterinarian on August 9, penicillin and streptomycin were administered.

On clinical examination on August 10, the dog was found to be in poor nutritional condition and extremely weak, with a temperature of 103.2 F. A tentative diagnosis of acute bacterial infection was made and 600,000 units of penicillin was administered. That night the dog was restless and refused food. Deep, labored breathing and an exaggerated heart beat were observed by the owner. Death occurred at home at 2 a.m. A tentative diagnosis of embolism secondary to a bacterial endocarditis then was made.

At necropsy, nine hours after death, the following lesions were found: (1) subacute vegetative bacterial endocarditis of all three cusps of the aortic valve (fig. 1); (2) several acute hemorrhagic infarcts and some chronic healed infarcts of both kid-

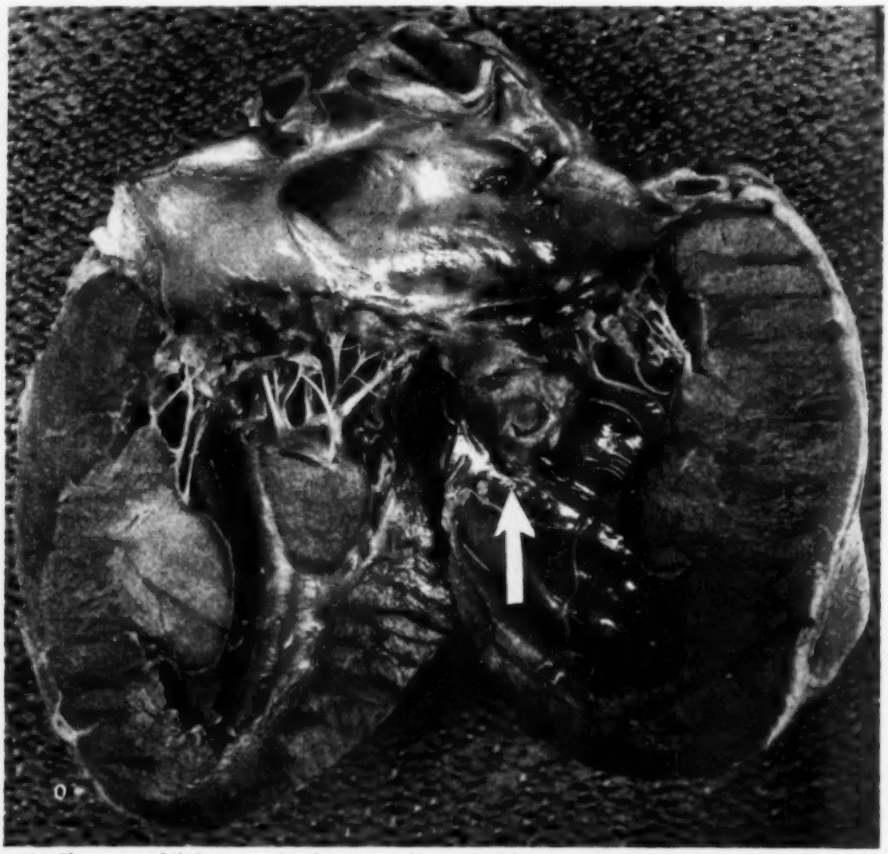

Fig. 6—The opened left ventricle showing a large, friable, brown vegetation on one of the mitral valves. A marked muscular hypertrophy has developed as a result of the mitral valvular insufficiency (case 2).

neys, with capsular adhesions; and (3) an organizing infarct (2 cm. in diameter) of the ventral end of the spleen.

The whole heart was fixed in 10 per cent formalin for two days, then the coronary arteries were dissected. When the myocardium was sliced serially, five emboli of various ages were detected. One embolus, a soft brownish elongated mass, found in the lumen of the left descending subepicardial branch, was not firmly attached to the arterial wall at any point. The largest embolus, 2 mm. in diameter and about 8 mm. long, had one end attached to the wall by means of elastic fibrinous adhesions. The surrounding myocardium was slightly reddened. All grossly visible embolic processes and other parts of the myocardium showing evidence of discoloration, such as yellowish or hemorrhagic streaks, were taken for microscopic sectioning.

Histopathology.—In two areas of the myocardium, a septic embolus was found in the lumen of an artery. Fibrinous adhesions held the embolus firmly to the arterial wall, which was edematous and diffusely infiltrated with neutrophils (fig. 2). Marked perivascular edema, with fibrin and neutrophils, spread far out into the surrounding myocardium. Some bland emboli appeared in other sections which showed an edematous vessel wall, but the surrounding myocardium was normal (fig. 3).

Bracht-Wächter bodies were scattered throughout normal myocardial muscle fibers. They appeared as small foci of edema with heavy neutrophilic infiltration of the interstices (fig. 4). The majority of the muscle fibers in these areas had undergone degeneration and necrosis. Nowhere in the sections was frank pus evident. A bacterial stain, after Goodpasture's method, was carried out on the septic emboli. They showed numerous thin, gram-positive filaments with the morphological characteristics of Erysipelothrix organisms (fig. 5). Unfortunately, no cultural investigation was made at autopsy.

In the brain, a few nonoccluding thrombi were seen in arterioles, with small perivascular hemorrhages. Both the thrombi and the hemorrhages were considered to be an agonal process.

The valvular vegetation on all three cusps was identical and showed an organizing thrombus with fibrin covering the young granulating tissue. The base of the growth was fibrosed, with a few fibroblasts embedded in a partly hyalinized connective tissue. Peripherally, the tissue became more cellular and many fine neocapillaries were present. On this layer was superimposed a thick thrombotic mass containing neutrophils and numerous bacterial aggregations. The surface of the growth was coated with fresh acellular fibrin. Bacterial stains were made on the vegetation and showed gram-positive rods resembling Erysipelothrix.

The kidneys exhibited lesions of different ages and of varied extent, from an acute focal embolic hemorrhagic glomerulonephritis to extensive infarcts. Many glomeruli were the point of origin for either a small suppurative focus or a localized scar with fibrosis and hyalinization. Many old scarred infarcts with advanced atrophy of the glomerular and tubular apparatus were present. Marked hyalinization of the interstitial tissue had occurred.

Case 2.—A black, male Cocker Spaniel,

Fig. 7—A miliary infarct with a partly organized thrombus (see arrow) and marked calcareous degeneration of the myocardial fibers at the top. The lesion is surrounded by interstitial infiltration with neutrophils (case 2).

14 years of age, was admitted on Jan. 29, 1954, in a prostrate condition with uremic odor on its breath, posterior paresis, and paralysis of the right front leg. The animal had not urinated or defecated for the past two days. Euthanasia was advised because of the advanced age and poor condition.

The necropsy findings were: (1) subacute bacterial endocarditis of one of the cusps of the mitral valve (fig. 6); (2) marked myocardial hypertrophy of the left ventricle; (3) embolic infarcts, of various ages, of the kidneys, liver, and spleen; and (4) benign bilateral prostatic hyperplasia.

The coronary arteries were dissected and the myocardium was serially sliced. A nonoccluding thrombus in the proximal part of the left circumflex coronary artery, measuring 8 by 2 mm., was the only gross lesion which could be demonstrated in the coronary vessels. Several pieces were taken, for sectioning, from the myocardium where it appeared abnormally pale or reddened.

Histopathology.—Scattered throughout the myocardium were several small foci of degenerated and calcified myocardial fibers. On first examination, they gave the impression of being identical to the myocardial lesions seen in muscular dystrophy due to vitamin E deficiency in lambs and calves. However, careful study often showed a thrombosed arteriole associated with the change (fig. 7).

The valvular vegetations and the kidneys of case 2 were histologically identical to those of case 1, except that bacterial stains of the vegetation in case 2 showed a pure culture of gram-positive cocci.

SUMMARY

Two cases of subacute bacterial endocarditis with subsequent coronary embolism in the dog are described. The first dog had vegetations on all three aortic cusps and died suddenly, presumably from embolism. The second dog had extensive vegetation of one of the mitral valves, and euthanasia was performed because of weakness. In both cases, several embolic processes were found in the myocardium as well as in the spleen and kidneys. The high incidence of coronary embolism, which has previously been questioned, is briefly mentioned.

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Cortisone or Aspirin Therapy

When 61 patients with rheumatoid arthritis were divided into two groups with the sex, age, and duration of symptoms about equal in each group, there was little difference in the benefits when one group was treated with cortisone and the other with aspirin. After one year of treatment and observation, there was a surprisingly close parallel in the joint tenderness, range of joint movement, and in the functional capacity of the patients in the two groups. The only superiority of cortisone therapy was in a slightly more favorable hemoglobin level and blood sedimentation rate.

Regret is expressed that a third group had not been given a placebo. The 61 patients treated were in the early stages of rheumatoid arthritis. Results might have been different with more advanced cases.—*Brit. M. J., May 29, 1954.*

Intraperitoneal Fluid Circulation

Man's peritoneal cavity normally contains only a few milliliters of free fluid but in ascites it may contain 10 liters. That this is not due to slow absorption has been demonstrated by injecting radioactive materials. Whether injected intravenously or intraperitoneally, equilibrium occurred in about ten hours, indicating that between 40 and 80 per cent of the ascitic fluid was exchanged every hour. This would indicate that 100 liters of fluid could be absorbed daily. Ascites, therefore, seem to be due more to the overproduction than to the impaired removal of fluids. Intraperitoneally injected particulate matter, as well as fluids, was previously known to be absorbed but the rate indicated is surprising.—*Brit. M. J., Feb. 20, 1954.*

Isolation of Leptospira Pomona from a Bovine Eye

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UVEITIS IN MAN has been described and recognized as a sequela of leptospiral infection for many years.[1] In 1952, Alexander *et al.*[2] first reported bacteriological proof that severe uveitis was a sequela to a confirmed Leptospira infection which had, in this case, been contracted in a laboratory. These workers succeeded in recovering the causative leptospiral serotype from the anterior chamber of the patient's eye.

Recent reports[3-5] have indicated *Leptospira pomona* as a cause of equine iridocyclitis. Heusser[6] succeeded in reproducing the disease in horses by ocular instillation of Leptospira organisms.

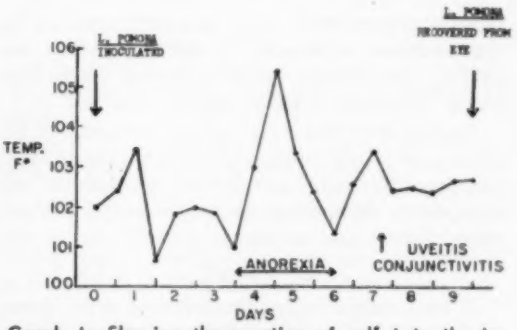
In the laboratory, rabbits given inoculations of living cultures of Leptospira subsequently yielded organisms in the fluid from the anterior chamber of the eye, even though circulating antibody titers were extremely high.[7] Such organisms were identical serologically to the leptospiras used in the inoculums.

Eye involvement in canine leptospirosis is often observed by veterinary practitioners. No reports of bovine leptospiral uveitis have been found in available literature but, in field outbreaks of bovine leptospirosis, we have observed some concurrent eye involvement which could not be diagnosed as being due to other disease conditions.[8]

CASE REPORT

In the course of an immunity experiment with cattle, it was necessary to increase the virulence of a leptospiral serotype to be used as material for challenging induced immunity. The method was to pass the organisms from cow to cow via venous blood drawn during the febrile bacteremic stage. From the jugular vein of the febrile donor animal, 25 ml. of blood was drawn and inoculated intramuscularly into the gastrocnemius area of the recipient, next-passage calf. Six-week-old, dairy-type calves negative to the leptospiral microscopic agglutination-lysis test[9] were selected for this study. Concurrent inoculation into leptospiral medium was made with the blood of the donor calf at the time of passage to provide proof of bacteriological transfer.

The initial inoculation material to start the calf-passage series was 1.0 ml. of heart blood from a moribund weanling hamster which had been inoculated three days previously with 0.5 ml. of a five-day culture of *L. pomona* 285.* Calf 1 of the series (first calf) was inoculated intramuscularly with the 1.0 ml. of hamster blood diluted with 9.0 ml. of normal saline solution. A febrile response was noted on the fourth day after inoculation (D plus 4) and persisted for a



Graph 1—Showing the reaction of calf 1 to the inoculation of Leptospira organisms.

day and a half (graph 1). Anorexia was evident during this stage. Passage from this animal was made when its temperature was highest, through venipuncture blood to calf 2 (2nd passage calf), which subsequently showed similar symptoms and died eight days after inoculation (D plus 8).

Meanwhile, calf 1 apparently recovered from the febrile phase. On the second day after the temperature subsided, a slight conjunctivitis developed in the right eye and was followed the next day by left eye involvement. The severity of the conjunctivitis ranged from mild catarrhal to severe mucopurulent in both eyes but subsided after the third day. Bilateral uveitis was marked and persisted for several days after disappearance of the conjunctivitis, but both eyes appeared normal after about the seventh day of uveal involvement. Anterior chamber puncture of the right eye on the third day and culture of aqueous humor so

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*This was obtained through the courtesy of Lt. Col. R. H. Yager, Army Medical Service Graduate School, Walter Reed Army Medical Center, Washington, D.C.

obtained resulted in isolation of leptospiras indistinguishable from *L. pomona* 285, the initially inoculated serotype.

Further recovery was uneventful and spontaneous. Serological response, as evidenced by the microscopic leptospiral agglutination-lysis test, is reported in table 1. As further evidence of leptospiremia in calf 1, leptospiras were cultured from the blood transfused from calf 1 into calf 2.

TABLE 1—Agglutination-Lysis Test Results (Calf 1)

Days after exposure	Serum titer against Leptospira pomona
4	Negative
10	1:400
16	1:1,600
21	1:6,400

Calf 1 was the only calf in the series to show eye involvement, although subsequent passage animals exhibited a variety of symptoms including hemoglobinuria, diarrhea, fever, and anorexia.

SUMMARY

A calf experimentally infected with *Leptospira pomona* showed transient bilateral uveitis after recovering from the initial febrile stage. Anterior chamber puncture was made of one eye during the uveitis and *L. pomona* was isolated from the aqueous humor. Calves used for subsequent passages did not exhibit uveal involvement although other symptoms increased in severity.

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Porcine Eperythrozoonosis

Eperythrozoonosis was recently diagnosed at the University of Georgia Veterinary Clinic for the first time. The 3-month-old pig, which had seemed normal twelve hours previously, was weak, pale, staggering, and had a temperature of 103.8 F. Ferrocobalt solution and vitamin B therapy, along with antibiotics and calcium gluconate, were ineffective, the pig being *in extremis* on the fourth day. Organic arsenicals, which were not used in this case, are recommended.—*Southeastern Vet., Spring, 1954.*

[Ictero-anemia, which for at least twenty-five years has been a frequent, sporadic, but not too serious problem in certain areas, may have been eperythrozoonosis. However, if it was, some explanation is needed as to why it spread so little and why it did not remain in the herd. Also why diligent search by many competent diagnosticians failed to find the inclusion bodies. In true eperythrozoonosis, arsenical preparations, given subcutaneously with hematonics, seemed to have marked therapeutic value if given early and repeatedly.—ED.]

Onchocerca Reticulata in the Horse

When Riek, in Queensland, Australia, examined the cervical ligament (ligamentum nuchae) in 282 horses of all ages and types, he found 79.8 per cent infested with *Onchocerca reticulata* (*O. cervicalis*). Calcified and necrotic parasites were found in the only animal showing antemortem lesions of fistulous withers. On necropsy, 5 per cent of the horses, all over 6 years old, had some abscess formation or necrosis in the region of the withers. No adult parasites were found in the majority of the latter animals but whether previous infestation had occurred was uncertain.—*Austral. Vet. J., June, 1954.*

Spraying sheep, immediately after shearing, with a paint which will bind the wool fibers together to reflect the sun's rays in summer, retain heat in winter, keep out dirt, and reduce shrinkage is being tried by New Mexico sheep raisers. —*Farm J., Sept., 1954.*

Recovery of the Fourth Immunological Type of Vesicular Exanthema Virus in California

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EARLY EPIDEMIOLOGICAL studies of the inconsistent nature and occurrence of vesicular exanthema (VE) in garbage-fed hogs indicated the existence of more than one immunological type of the virus.[1,2] A collection of infected material from California outbreaks occurring between 1933 and 1934, which was submitted to and studied by Dr. A. B. Crawford of the U. S. Bureau of Animal Industry, resulted in recognition of four immunologically distinct types of the virus. These were designated as types A, B, C, and D but unfortunately these original isolates are no longer available. Since beginning the present studies in 1951, three immunologically and serologically distinct types have been encountered in California. These were designated as types F, B, and A[3] but have been reclassified as immunotypes A_{48}, B_{51}, and C_{52}, respectively, for convenience and in accordance with recommendations of the U. S. BAI.

Since the development of a complement-fixation test for the identification and differentiation of VE, samples of infected material from hogs in the field have been submitted for confirmation and study to this laboratory by veterinarians of the Agricultural Research Service, U.S.D.A., and the California Bureau of Livestock Disease Control. The results of testing and differentiating the immuno-types in 263 samples were published elsewhere.[4] This report deals with the confirmation of a fourth immunologically distinct type of the virus which was submitted by one of us (H.B.K.) from an outbreak in the southern part of the state.

From the School of Veterinary Medicine, University of California, Davis. Dr. Keith was assigned by the Agricultural Research Service, U.S. Department of Agriculture, to the study of vesicular exanthema.

This project was supported in part by grants from the Agricultural Research Service, U.S. Department of Agriculture, and from the Public Health Service, National Institutes of Health, Bethesda, Md., grant E-445.

HISTORY OF THE OUTBREAK

On Oct. 23, 1953, Dr. C. K. Shane, of the California State Department of Agriculture, was making a routine investigation on a hog ranch located in Riverside County. Numerous unruptured raised vesicular lesions on the snouts of a few hogs were observed.

The following day, one of us (H.B.K.) accompanied by Dr. Jay H. Bouton, county veterinarian of Riverside County, visited the ranch for the purpose of harvesting material for the differential test. Of the 900 head on the ranch, approximately 20 per cent showed snout lesions of at least three weeks' duration. Material was harvested and prepared from 5 animals with temperatures of 104.0 to 105.6 F., and the suspension inoculated into 2 calves. In the meantime, the herd was placed under quarantine and after ten days was released when no lesions developed in the test calves. The harvested material was forwarded to the laboratory of the University of California for typing.

A return visit to the ranch three weeks later did not reveal evidence of new vesicular lesions in any of the hogs.

RESULTS

Upon receipt in the laboratory, the sample was immediately prepared and tested serologically. However, no fixation of complement in the presence of normal, type A_{48}, type B_{51}, or type C_{52} VE swine antiserums was obtained, nor was fixation evident from testing freshly harvested

TABLE 1—Results of Inoculating a Suspension of the Fourth Type of Virus into a Calf, 8 Guinea Pigs, and Swine Immune to the Three Known Types of Vesicular Exanthema Virus

Animal species	History	Inoculation route	Results
Calf		i.d. L*	Negative 14 day.
8 guinea pigs		i.d. tarsally	Negative 14 day.
Hog 1679	Recovered type A	i.d. snout	Temp. 104.3 F., primary and sec. lesions.
Hog 1560	Recovered type A	i.d. snout	Temp. 104.6 F., primary and sec. lesions.
Hog 1653	Type B hyperimmune	i.d. snout	Temp. 103.4 F., primary lesions only.
Hog 1664	Type B hyperimmune	i.d. snout	Temp. 106.2 F., primary and sec. lesions.
Hog 1658	Type F hyperimmune	i.d. snout	Temp. 104.2 F., primary and sec. lesions.
Hog 1661	Type F hyperimmune	i.d. snout	Temp. 105.6 F., primary lesions only.
Hog 1703	Susceptible	i.d. snout	Temp. 104.0 F., primary lesions only.
Hog 1708	Susceptible	i.d. snout	Temp. 106.1 F., primary and sec. lesions.

*i.d. = intradermal; L = lingual.

vesicular material obtained from hogs inoculated in the laboratory.

To verify that the disease was VE and not another vesicular disease and to further determine its immunological status, a suspension of virus prepared from the first hog passage was inoculated into a calf, 8 guinea pigs, and 2 susceptible swine and into each of 2 hogs in groups known to be immune to types A_{48}, B_{51}, and C_{52} VE virus, respectively. The results are shown in table 1. It is apparent from these inoculations and cross-immunity studies that a new immunological type of vesicular exanthema virus was encountered. The virus was designated as immuno-type D_{53}.

To ensure that the virus suspension did not contain more than one immunological type, the original virus suspension was treated with antibiotics and passed successively through each of 2 hogs hyperimmunized to types A, B, and C VE virus, respectively, before inoculating susceptible hogs for virus material to be employed for the production of hyperimmune antiserum.

Complement-fixation tests with the purified virus suspension, when tested in the presence of recovered or properly diluted swine hyperimmune antiserum, resulted in excellent and selective fixation with its homologous antiserum as shown in table 2.

TABLE 2—Complement-Fixation Test Reactions Employing a 10 Per Cent Suspension of the Fourth Immunological Type of Vesicular Exanthema Virus with Antiserums of Each Type of the Virus

Hog antiserums		Dilution of Virus (D_{53})				
Type	Per cent	1:10	1:20	1:40	1:80	1:160
Normal swine	4	0	0	0	0	0
Type A_{48}	2	0	0	0	0	0
Type B_{51}	4	±	0	0	0	0
Type C_{52}	2	0	0	0	0	0
New type D_{53}	20	++++	++++	+++	++	+
New type D_{53}	8	++++	+++	+	0	0

SUMMARY

A fourth immunologically and serologically distinct type of vesicular exanthema has been recovered from an outbreak of the disease in California. The type has been designated as immuno-type D_{53}.

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A Huge Antituberculosis Campaign

The World Health Organization has recently published a report on 30 million persons tested with tuberculin and 14 million receiving BCG vaccination over a three-year period in 23 countries, mostly in eastern Europe, southern Asia, and northern Africa, plus Ecuador and Mexico in the Americas. The campaign is continuing with 90 million people tested and 36 million vaccinated (not yet officially reported) in 30 other countries. The work has been done by an international staff of 200 doctors and 300 nurses in cooperation with hundreds of doctors, nurses, and BCG technicians of the nations involved at a total cost of about $10 million.—*WHO News, Sept. 13, 1954.*

Food Quality Test Organisms

Microorganisms which serve as indicators that foods may be contaminated by dangerous bacteria, and which are easily isolated and identified, have been sought. When *Escherichia coli* and *Streptococcus faecalis*, normal inhabitants of the intestinal tract, are found, while not a sure sign of dangerous contamination, they indicate that a further search should be made.—*J. Milk and Food Tech., July, 1954.*

Genistein from the Soybean.—Commercial soybean meal contains an estrogenic compound, "genistein," which is much more potent than diethylstilbestrol.—*Proc. Soc. Exptl. Biochem. and Med., No. 2, 1953.*

Foot-and-Mouth Disease Immunity

In France where cyclic epizootics of foot-and-mouth disease occur, the fourteen-year observation of a purebred herd showed that the descendants of a cow which resisted the disease in 1938 were either completely or partially immune. A similar resistance was observed in the descendants of a bull.— *Vet. Bull., Aug., 1954.*

Virus-Type Inclusions in the Epithelium of the Canine Renal Medulla

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THE PURPOSE of this article is to describe the occurrence of Coudry's type A intranuclear inclusions in the epithelial cells of collecting tubules in the canine renal medulla and to discuss their possible significance in relation to infectious hepatitis. These inclusions were seen in the renal medulla of 4 of the 69 pound dogs obtained from various sources and kept for surgical exercises at the Department of Small Animal Medicine and Surgery (API). On the basis of data given herein, it is a logical presumption that the entire group of dogs had been exposed to the virus of infectious canine hepatitis.

HISTORY

The dogs were kept in groups of 5 to 15 in adjoining runs with concrete floors and separated by a single fence of 1½-inch wire mesh. Occasionally, dogs were transferred from one group to another.

On May 20, 1952, 1 of the dogs died of infectious canine hepatitis, as verified by histological demonstration of typical intranuclear inclusions in the liver and renal glomeruli. On May 21, another dog died as a result of a fulminating attack of infectious canine hepatitis. It had extensive liver damage and numerous typical inclusions in the liver and renal glomeruli. On May 26, a third dog died after having typical symptoms of infectious canine hepatitis; the diagnosis was confirmed histologically.

A fourth dog died on May 20. Its condition was not diagnosed as infectious canine hepatitis, but it showed lesions of toxoplasmosis (with organisms) in the liver, numerous cytoplasmic, distemper-type inclusions in the epithelium of the renal pelvis, and also a number of Coudry type A intranuclear inclusions in the epithelial cells of collecting tubules in the renal medulla (fig. 1). These inclusions were morphologically and tinctorially identical with the characteristic inclusions found in the hepatic and endothelial cells of dogs that die from infectious canine hepatitis.

EXPERIMENTAL OBSERVATIONS

The presence of nuclear inclusions in the renal medulla of a dog apparently exposed to infectious canine hepatitis, but not systemically affected by the disease, suggested the possibility that this could be a morphological manifestation of the renal carrier state of the disease, as reported by Poppensiek and Baker.[1] It, therefore, was decided to examine the kidneys and liver of the remaining 65 dogs in the group. Euthanasia was performed on these dogs on May 28, 1952, eight days after the first fatality from infectious canine hepatitis had occurred. Sections of liver and kidney were taken from each dog for histopathological examination.

One of the 65 dogs showed a few typical intranuclear inclusions in the liver, but none at any location in the kidneys. This was considered to indicate either a mild systemic infection or an early systemic infection with the virus of infectious canine hepatitis.

Three of the 65 dogs showed type A intranuclear inclusions in the epithelial cells of collecting tubules in the renal medulla, but none in the renal glomeruli or liver. Thus, no evidence of systemic infection with infectious canine hepatitis was observed in these 3 dogs, but an indication of the

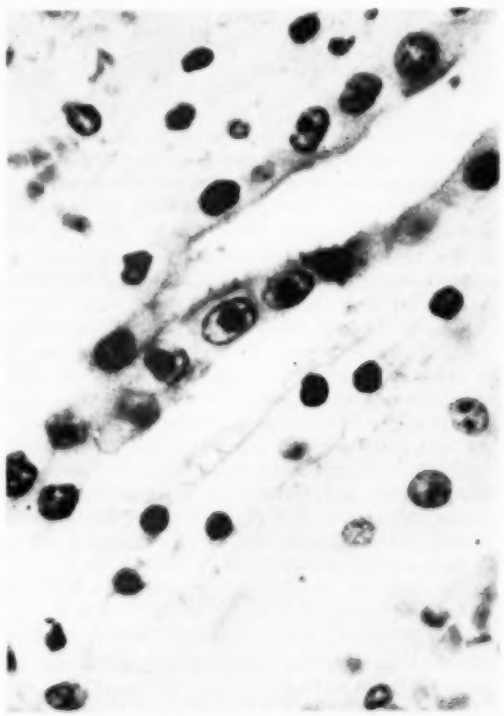

Fig. 1—Renal medulla of dog showing intranuclear inclusions in epithelial cells of collecting tubules. x 800.

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presence of virus (persumably infectious canine hepatitis virus) was found in the renal tubular epithelium. The kidney section of 1 of these dogs showed no appreciable inflammatory reaction, but 2 had a focal nephritis. In 1, the inflammatory

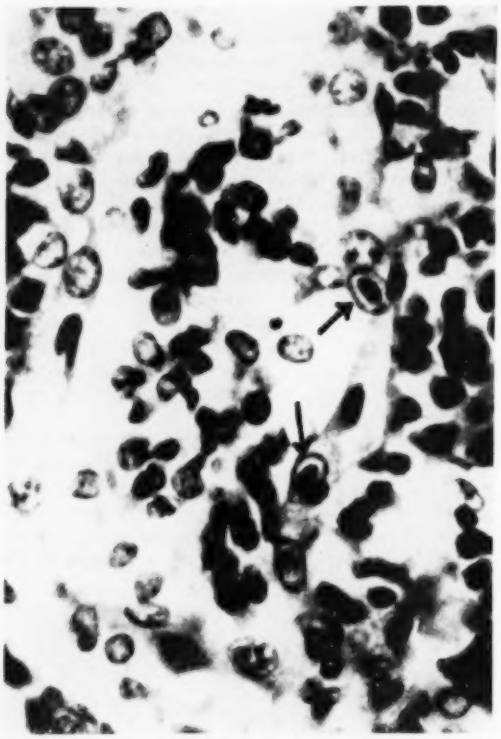

Fig. 2—Renal cortex of dog showing focal nephritis and intranuclear inclusions (arrows) in tubular epithelial cells. x 800.

foci were situated in the cortex and outer medulla apart from the area of the inner medulla where inclusions were found. Inclusions could not be demonstrated in tubular epithelium within or near the inflammatory foci. In the other dog, the inflammatory foci were situated in the cortex, outer medulla, and inner medulla, with inclusions seen in the tubular epithelium within or near most of the inflammatory foci (fig. 2). The inclusions in the tubular epithelium were widely distributed, being found both in the medulla and cortex. As stated above, there also were foci of nephritis occurring in relation to the tubules showing the inclusions.

DISCUSSION

Poppensiek and Baker[1] have demonstrated that some dogs, after apparent recovery from infectious canine hepatitis, can eliminate infective virus in the urine. Since such dogs have circulating antibodies against canine hepatitis, and sometimes show a focal nephritis, it was concluded that the virus persists in the kidneys and that the kidneys are the source of the infective virus eliminated in the urine. Coffin *et al.*[2] demonstrated that the intranuclear inclusions of infectious canine hepatitis contain high concentrations of viral antigen.

In the light of the above information, it appears significant that intranuclear inclusions identical with those of infectious canine hepatitis were found in the renal tubular epithelium of 4 dogs exposed to the virus of canine hepatitis but without histological evidence of concurrent systemic infection. It is logical to believe that these 4 dogs had been infected with the virus of infectious canine hepatitis, had survived the stage of viremia or systemic infection, and that the infection persisted in epithelial cells lining the collecting tubules in the renal medulla.

The occurrence of type A intranuclear inclusions in the renal tubular epithelium of dogs warrants further investigation, since it appears that this may be a valuable histological criterion for diagnosing carriers of infectious canine hepatitis.

SUMMARY

Type A intranuclear inclusions were found in the epithelial cells of collecting tubules in the renal medulla of 4 of 69 dogs exposed to the virus of infectious canine hepatitis. None of the 4 dogs showed histological evidence of concurrent viremia or systemic infection. The possible significance of these inclusions in diagnosing carriers of infectious canine hepatitis is discussed.

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Therapeutic Sleep for Tetanus.—Artificial hibernation with sedatives for several days is recommended in tetanus therapy in man, in addition to wound excision and antitoxin. During hibernation, anaphylactic and allergic side-reactions did not seem to occur as the result of antitoxin injection.—*J.Am.M.A., July 10, 1954.*

Penicillin Concentration in Bovine Blood and Milk After Intramuscular Injection and Its Application in the Treatment of Mastitis

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THE OBJECT of this study was to determine the penicillin levels in blood serum and milk in normal lactating cows following intramuscular injection of penicillin. The possible application of this procedure was subsequently evaluated in the treatment of bovine infectious mastitis.

REVIEW OF THE LITERATURE

Since the introduction of penicillin as a drug for the treatment of mastitis, several attempts have been made to obtain therapeutic concentrations of penicillin in milk by parenteral administration. Early trials were conducted by Bryan *et al.*[2] on the effect of intravenous injection of penicillin in the treatment of chronic streptococcic mastitis. They injected, intravenously, total doses of 200,000 and 400,000 units of penicillin over a period of twelve hours at three-hour intervals and reported the treatment was not effective in promoting recovery of cows with mastitis due to *Streptococcus agalactiae*.

Seeley *et al.*[6] were unable to detect penicillin in the milk of a lactating heifer free from mastitis after the intravenous injection of 80,000 and 500,000 units of penicillin. They concluded that the lactating mammary gland was not permeable to penicillin. Watts and McLeod[9] injected doses of 100,000, 500,000, and 1 million units of pencillin intramuscularly into lactating heifers and were unable to detect penicillin in the milk.

Barker and Dussault[1] injected, intramuscularly, penicillin in beeswax and oil into a lactating cow affected with streptococcic mastitis. A total of 2,681,000 units was injected. On the basis of the results, they stated that the lactating bovine mammary gland appeared to be nonpermeable to penicillin. Welsh *et al.*[10] were able to detect penicillin in the milk of 2 normal lactating cows after the subcutaneous injection of 16,250,000 units of penicillin to 1 cow and 17,250,000 units to the other.

Edwards and Haskins[3] found penicillin in the milk of cows following the intramuscular or intravenous injection of 11 mg. of penicillin per pound of body weight. Murphy and Stuart[8] successfully treated *Str. agalactiae* infection of the udder by the intramuscular injection of a total of 42 million units of aqueous procaine penicillin over a period of seven days at twelve-hour intervals.

When the work reported here was started in 1952, the report of Welsh *et al.*[10] was the only one indicating that penicillin might be found in the milk after parenteral administration.

MATERIALS AND METHODS

Normal lactating cows of different ages and production, as well as cows showing clinical symptoms of mastitis, were used in this study.

Crystalline penicillin G was injected subcutaneously in a few animals and pronapen®* (crystalline penicillin G and penicillin G procaine 1:3) was injected intramuscularly in the majority of the cases. The cows were milked immediately before the injections were made. The dose of penicillin was calculated on the basis of 5,000 units per pound of body weight and dissolved or suspended in sterile distilled water to give a dilution of 400,000 units per milliliter.

Blood and milk samples were collected in sterile tubes at different intervals (tables 1 and 2). The milk and blood serum samples were kept at −23 C. before the assays were made. The agar plate-cup method[12] as outlined by the Federal Drug Administration, Washington, D. C., was used for assay of penicillin in milk and blood serum.

Cows with clinical mastitis were treated with pronapen. Each cow was given three intramuscular injections at 24-hour intervals. Composite milk samples were collected aseptically from each animal before treatment and at two and four weeks post-treatment. The milk samples were incubated at 37 C. for eighteen hours then streaked on blood-agar plates for isolation of organisms.

A privately owned herd composed of 17 cows kept in one barn under average conditions of hygiene and management was used in part of this study. All the animals had a variable degree of induration of the udder and some showed periodic "flare-ups" of micrococcic and streptococcic mastitis. Bacteriological examination of the milk revealed 15 cows shedding organisms in their milk. Seven of the 15 were treated by the intramuscular injection of penicillin as described before, and 8 were left as untreated controls. In the daily milking order, the treated group was milked before the untreated controls.

RESULTS

The results are summarized in tables 1

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The author gratefully acknowledges the advice of Dean R. Graham and Dr. H. S. Bryan, College of Veterinary Medicine, University of Illinois, Urbana.

This work was supported in part by a grant from Commercial Solvents Corporation, Terre Haute, Ind.

*Pronapen is a trademarked product of Chas. Pfizer and Co., Brooklyn, N. Y.

TABLE 1—Penicillin Levels in Milk and Blood in 2 Mastitic and 1 Normal Cow After a Single Subcutaneous Dose of Crystalline Penicillin G, 5,000 Units per Pound of Body Weight

Animal	Fluid assayed	Penicillin levels in units per milliliter									
Hour		¼	½	1	2	3	4	5	6	7	8
Cow with M. pyogenes mastitis	Milk	0	0	0.033	0.068	0.125	0.185	0.25	0.29	0.2	0.198
	Blood serum	0.6	10.0	3.0	3.1	8.0	1.2	1.1	0.5	1.2	1.0
Cow with M. pyogenes mastitis	Milk	0	0	0.03	0.05	0.06	0.18	0.2	0.29	No assay	
	Blood serum	0	3.0	4.0	1.6	1.3	0.01	0.9	0.8	No assay	
Normal cow	Milk	0	0	0	0.015	0.062	0.07	0.1	0.09	0.1	0.11
	Blood serum	3.5	3.5	3.0	2.0	3.0	4.5	1.2	2.5	0.9	1.0

and 2. Table 1 shows that penicillin was detected in the milk for eight hours after the subcutaneous injection of a single dose of crystalline penicillin G. Penicillin was detected in the milk one hour after injection in the 2 mastitic cows, and after two hours in the normal cow. The maximum concentration of penicillin in the milk was reached between the fifth and sixth hours after injection. The minimum penicillin concentration in milk was 0.015 unit per milliliter and the maximum concentration was 0.29 unit per milliliter. The therapeutic level is 0.032 unit. The maximum blood serum level was reached during the first hour after injection and declined toward the eighth hour.

The data in table 1 indicate that penicillin appears in the milk in a shorter time and higher concentration after administration in the cows with mastitis than in the normal cow.

Table 2 shows the milk and blood serum concentrations in a group of 4 normal lactating cows after intramuscular injection of pronapen. The animals were used periodically in the 13 trials included in the table. Penicillin was detected in the milk two hours after injection and, on the average, lasted for twenty-four hours. The mean penicillin-milk concentration per milliliter was 0.071 unit at two hours, 0.082 unit at three hours, 0.099 unit at four hours, 0.137 unit at five hours, 0.129 unit at six hours, 0.186 unit at twelve hours, and 0.046 unit at twenty-four hours.

Four cows with chronic streptococcic mastitis were treated by the intramuscular injection of pronapen, at the rate of 5,000 units per pound body weight, every twenty-four hours for three days. The 4 animals recovered clinically and the bacteriological examinations of the milk at two and four weeks post-treatment did not reveal the presence of streptococci.

In the privately owned herd, 6 of 7 treated cows had *Micrococcus pyogenes* mastitis and 1 had streptococcic mastitis.

TABLE 2—Penicillin Levels in Milk and Blood After a Single Dose of Pronapen Administered Intramuscularly, 5,000 Units of Penicillin per Pound of Body Weight, to 4 Normal Cows on 13 Occasions

Trial (No.)	Substance assayed	Penicillin levels in units per milliliter									
Hr.		0	1	2	3	4	5	6	12	24	30
1	Milk	0	0	0.35	0 075	0.07	0.125	0.06	0.125	0.05	No assay
	Blood serum	0	1.2	1.25	1.3	1.2	1.3	0.7	0.7	0.15	No assay
2	Milk	0	0	0.022	0.03	0.045	0.08	0.035	0.1	0.035	No assay
	Blood serum	0	2.0	2.0	1.3	1.35	1.3	1.2	0.8	0.3	No assay
3	Milk	0	0	0.08	0.11	0.125	0.125	0.126	0.1	0.025	No assay
	Blood serum	0	1.3	1.3	0.8	1.0	0.9	0.8	0.6	0.35	No assay
4	Milk	0	0	0.01	0.062	0.07	0.125	0.127	0.2	0.062	0.045
	Blood serum	0	1.2	0.8	0.6	0.61	0.6	0.58	0.4	0.18	0.12
5	Milk	0	0	0.022	0.04	0.045	0.125	0.13	0.1	0.035	0.015
	Blood serum	0	1.2	0.6	0.65	0.5	0.49	0.7	0.25	0.15	0.12
6	Milk	0	0.045	0.08	0.08	0.09	0.45	0.15	0.075	0.012	0
	Blood serum	0	1.3	1.25	0.8	0.8	0.62	0.55	0.6	0.15	0.055
7	Milk	0	0	0.01	0.062	0.07	0.125	0.126	0.2	0.061	0.04
8	Milk	0	0	0.02	0.041	0.045	0.126	0.145	0.1	0.062	0.035
9	Milk	0	0	0.08	0.011	0.125	0.126	0.1	0.047	0.021	No assay
10	Milk	0	0	0.25	0.15	0.26	0.29	0.33	0.39	0.05	No assay
11	Milk	0	0	0.056	0.09	0.065	0.12	0.17	0.29	0.075	No assay
12	Milk	0	0	0.2	0.22	0.2	0.152	0.1	0.5	0.062	No assay
13	Milk	0	0	0.05	0.1	0.09	0.125	0.08	0.2	0.062	No assay
Mean penicillin milk level				0.071	0.082	0.099	0.137	0.129	0.186	0.046	---
Maximum penicillin milk level				0.2	0.22	0.2	0.152	0.17	0.5	0.075	---
Minimum penicillin milk level				0.01	0.01	0.065	0.08	0.06	0.047	0.012	---

The intramuscular penicillin therapy eliminated *M. pyogenes* from the udders of 5, as determined by the bacteriological examination of milk at two and four weeks posttreatment. One cow shedding micrococci in the milk and the 1 shedding streptococci did not respond to the treatment. Of the untreated controls, 7 cows infected with *M. pyogenes* continued shedding the organism in their milk for the duration of the experiment. One cow made a spontaneous recovery.

DISCUSSION

The intramammary infusion of antibiotics and other chemotherapeutic agents is the most extensively employed method for treatment of bovine infectious mastitis. The reasons for favoring this procedure are:

1) The apparently erroneous belief that there is a mammary gland barrier against antibiotics when given parenterally.

2) It provides an immediate and high concentration of antibiotic in the udder.

3) The relatively low cost of the treatment.

4) The treatment yielded good results against streptococci when the method was first introduced.

These factors might be ample to justify the popularity of the intramammary infusion. However, the method appears to have the following drawbacks and possible limitations:

1) The accidental[7] introduction into the udder of pathogenic microorganisms which are not sensitive to the antibiotics or other chemotherapeutic agents.

2) The location and anatomy of the udder may limit thorough diffusion of the infused material.

3) The gravitation of the secreted milk probably hinders upward diffusion of the antibiotic.

4) The practice of massaging the udder after infusion, while it may help to spread the infused material, probably also spreads the infection into healthy portions of the udder.

5) The diffusion of substances introduced into the udder by the streak canal depends to a great extent on the character and extent of lesions present in the udder in the different forms of mastitis. It is almost impossible to predict the degree of diffusion in a mastitic udder.

6) A feasible explanation of the failures in treating mastitis caused by organisms sensitive to the antibiotic in use is that the antibiotic does not reach the causative organisms, either because of lack of diffusion or because of the occlusion of the ducts in the inflamed area.

Schalm and Woods[11] used 1 million units of penicillin and 1 Gm. of dihydrostreptomycin in 50 ml. of sterile distilled water infused four times at 24-hour intervals for the treatment of *Staphylococcus pyogenes* mastitis. They reported 70 per cent recovery in lactating glands and 73 per cent recovery in dry glands. This massive dose, if evenly distributed in the udder, should be several times greater than is needed to kill susceptible organisms.

As a sequence in the variable results obtained in the treatment of mastitis by udder infusion of antibiotics, there has been a continuous demand for newer antibiotics or chemicals to aid in the control of mastitis. Meanwhile, not much attention was given to changing the method of treatment.

It was evident that the intramammary infusion of antibiotics, although logical to use under common practice conditions, was not entirely satisfactory for the treatment of mastitis.

The intramuscular injection of penicillin for treatment of mastitis as described in this paper seems to have the following advantages:

1) It is safe and convenient to use.

2) It eliminates individual treatment of separate quarters.

3) The time consumed in the preparation of the udder for infusion is eliminated.

4) It provides uniform penicillin levels in the milk as it is secreted, which may be regarded as bacteriostatic for ordinary udder pathogens.

5) It eliminates some of the factors possibly responsible for the failures of udder infusion.

In this work, a detectable penicillin-milk level which lasted for twenty-four hours was obtained by using 5,000 units of penicillin per pound of body weight. The antibiotic concentrations obtained remained fairly constant in spite of the usual twice-a-day milking. In trials 3, 6, and 9 (table 2), the penicillin-milk level at twenty-four hours dropped slightly below the generally accepted therapeutic level of 0.032 unit per milliliter of body fluid. Penicillin is most

effective against dividing organisms, so a number of bacteria in the nondividing state can survive a relatively high level. Since some have theorized that a slight interruption in the penicillin-milk level would allow such organisms to start multiplication and so render them susceptible to a subsequent injection of penicillin, such a drop could be beneficial.

Fairly good results, 9 recoveries of 11 animals treated, were obtained using the intramuscular injection of a repository penicillin, pronapen, in the treatment of streptococcic and micrococcic mastitis. The dosage level employed was considered effective in most cases for twenty-four hours. The treatment was continued for three days allowing twenty-four hours between injections. The animals were milked before the injections were made. In more severe or stubborn infections, the dose may be increased and the duration of the treatment prolonged.

From the results obtained in this work, one may conclude that penicillin is excreted in the milk after intramuscular injection of high doses and that the method is applicable in the treatment of certain types of bovine mastitis.

SUMMARY

1) Penicillin, when injected subcutaneously or intramuscularly into cows at the rate of 5,000 units per pound of body weight in a single dose, was readily detected in the milk.

2) The penicillin level in the milk generally remained within the therapeutic range (0.032 units per ml. of body fluid) for twenty-four hours in spite of the usual twice-a-day milking.

3) The possible limitations and drawbacks of udder infusion are listed, together with the advantages of the intramuscular treatment.

4) The intramuscular injection of repository penicillin at the rate of 5,000 units per pound of body weight every twenty-four hours for three days was found beneficial in the treatment of streptococcic and micrococcic udder infections.

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Bluetongue Vaccine Now Available

A vaccine for bluetongue, developed cooperatively by the ARS of the U.S.D.A., the State of California, and private industry, and having demonstrated potency and inocuity, has been approved and licensed by the ARS. Bluetongue has been officially diagnosed in Arizona, California, and Texas, and reliably reported in New Mexico and Utah and has probably been present in other western states. It is spread principally by small biting insects (Culicoides sp.) sometimes called sandflies or "no-see-ums".—*U.S.D.A.*

Thyroprotein for Lactating Ewes.—In three trials, when thyroprotein was fed to ewes it had no effect on the gain of their nursing lambs and the ewes showed a greater than usual loss of body weight.—*J. Anim. Sci., May, 1954.*

North American Blastomycosis in the Dog

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NORTH AMERICAN blastomycosis, caused by the fungus *Blastomyces dermatitidis*, may occur as a systemic or local disease. The local manifestations in man have been observed most often in the skin but, occasionally, in the bone [1,2] or larynx.[3,4] The disease originates in the lungs[5] and may involve, secondarily, all other organs.

Blastomycosis has been limited to North America, with the exception of a case in an American soldier who was stationed in Europe.[6] It is found primarily in the midwestern states.[7] An epidemic was reported recently,[8] and is the first published report of a verified epidemic.[9,10]

While most recorded cases of blastomycosis have been in man,[5, 11-16] 1 equine case has been reported,[16] and Ramsey and Carter[16] have collected information on 16 cases in the dog, 11 of them since 1946.[17-23] Included in the latter tabulation are 7 cases not previously reported. Others who have published canine case reports are Plummer,[24a, b] Radmore,[25] Robinson,[26] Riser,[27] Saunders,[28] and Menges.[29]

We did complete necropsies on 2 dogs and examined, grossly and miscroscopically, a portion of lung removed from another dog. These cases illustrate a typical primary complex.

CASE REPORTS

*Case 1**.—A 3-year-old female Boxer developed suppurative lesions on the neck, followed by anorexia and bulging of the left eye which became blue. She began to bump into objects and, after three weeks of futile treatment with combiotic,[§] she was examined by a second veterinarian who found an inflamed throat, enlarged tonsils, an abscess of a mammary gland, and a temperature of 103.2 F. A skin test for histoplasmosis was negative. Since the animal continued to fail, euthanasia was performed.

Necropsy Findings.—Several small papillary elevations, about 1 cm. in diameter, were observed on the lower lip, and ulcers were present between the mucosa and lip. A large fluctuating abscess was present in the second right mammary gland.

The lungs showed a primary complex, formed by a slightly triangular, sharply circumscribed, apparently caseated focus (1.5 by 1.0 cm.), in the left lower lobe, which cut with the resistance of an early mineral deposit. In its center was a small cavity. The overlying pleura showed no inflammation but was somewhat dull. A regional lymph node (left lower tracheobronchial) was completely caseated, enlarged, and measured 4.5 by 3.0 cm. (fig. 2). Numerous other mediastinal, tracheal, and bronchial nodes showed similar lesions.

In the right middle lobe were two sharply circumscribed caseated lesions which could possibly represent additional primary foci.

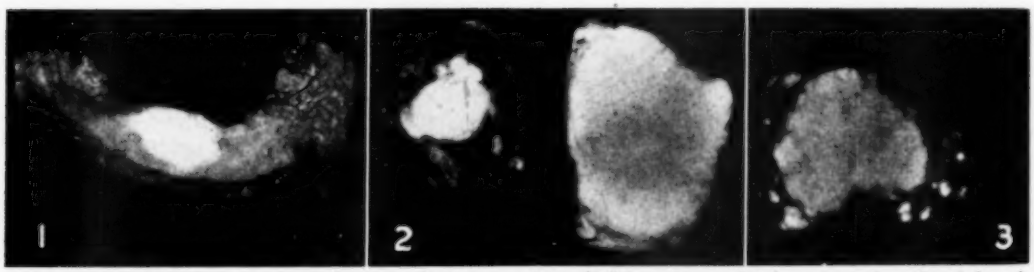

Fig. 1—Large blastomycotic granuloma in the interventricular septum of the heart of a 3-year-old female Boxer (case 1). Actual size.

Fig. 2—Primary focus in the lower left lobe of the lung (left) and completely caseated regional lymph node (right) (case 1). Actual size.

Fig. 3—The large and numerous small hepatic lesions (case 1). Actual size.

The remainder of the lung was studded with numerous miliary, and somewhat larger, grayish white nodules.

On the lower surface of the epiglottis was a polypoid, tumor-like lesion, 6 mm.

From the clinical laboratories, Jewish Hospital, Cincinnati, Ohio.

The necropsies and cultures for cases 1 and 3 were performed by Jan Schwarz, M.D.

*Obtained through the courtesy of J. S. Winkler, D.V.M., Newport, Ky.

in diameter, which seemed to start from the false vocal cord and involved the aryepiglottic ligament.

The heart was not enlarged, although it contained many caseated foci, 3 or 4 mm. in diameter (fig. 4), in the right ventricular wall and a completely caseated focus, 1 cm. in diameter, in the upper one-third of the interventricular septum (fig. 1). The valves and endocardium were normal.

The spleen was three times the normal size and contained occasional nodules.

The left lobe of the markedly enlarged liver was completely occupied by hundreds of caseated, nonconfluent lesions about 4 or 5 mm. in diameter (fig. 3). Similar, more scattered lesions were seen in the rest of the organ.

The kidneys showed isolated miliary nodules (fig. 7); the ovaries were somewhat enlarged but otherwise normal; and the adrenals appeared normal.

In one portion of the descending colon, the mucosa was thickened. The mesenteric lymph nodes were somewhat enlarged but not caseated.

Laboratory Examination.—Material from the lung, inoculated on to Sabouraud's dextrose agar and cultured at room temperature, developed typical smooth, grayish white colonies of *B. dermatitidis* which later became slightly filamentous. Culture mounts showed septate hyphae and occasional racquet-like swellings, with lateral sessile spores.

Histology.—When sections, stained by the periodic acid Schiff method and hematoxylin and eosin, were examined, both proliferative and exudative lesions were seen. The exudative lesions, consisting primarily of polymorphonuclear leukocytes and macrophages, predominated on the larynx and in the central region of the mammary gland. Proliferative lesions, composed of small granulomata formed by epithelioid cells arranged in circular fashion, were found in the remainder of the mammary gland, the lungs (fig. 6), lymph nodes, liver, spleen, heart, and ovaries. Many epithelioid cells coalesced to produce giant cells which resembled either Langhans' cells or foreign body giant cells. These small granulomata were frequently confluent and often formed macroscopic lesions, completely surrounded by fibrous tissue, in all organs but the heart. Strands of fibrous tissue irregularly

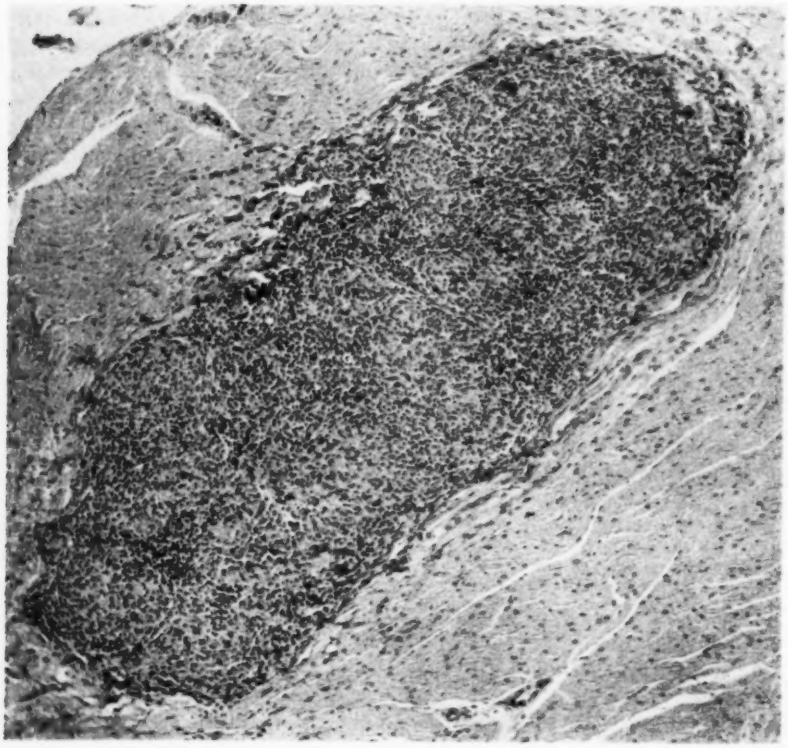

Fig. 4—Large granuloma in the myocardium of a 3-year-old female Boxer (case 1). Stain, PAS; x 90.

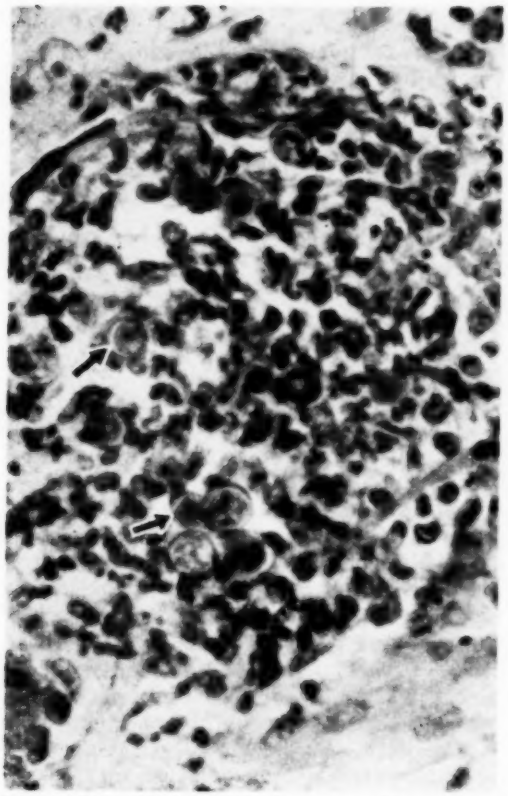

Fig. 5—Myocardial abscess (case 1) with numerous thick-walled yeast cells, several of which are budding (arrows). Notice the broad base of the buds. Stain, PAS; x 650.

sectioned the granulomata which frequently contained macrophages and small nests of polymorphonuclear leukocytes, often associated with an increased number of yeast cells. The largest abscesses were in the heart.

Giant cells often engulfed the organism and several contained budding forms. In none were the small forms of the organism seen.[5,29]

At necropsy, the lesions of the primary complex were thought to be caseated, but there was no microscopic evidence of complete necrosis. This tissue showed the greatest proliferation in reaction to the infection and contained an extraordinarily large number of yeast cells; the lymph nodes contained slightly more than the lungs.

The pleura was markedly thickened although no organisms and only a few inflammatory cells were adiacent. Apparently, this was the site of a "burned out" infection.

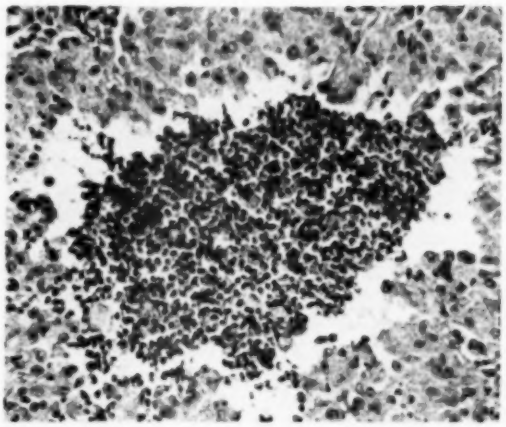

Fig. 6—Epithelioid cell tubercle with soft center (case 1). Numerous polymorphonuclear leukocytes and organisms are distinct features of the mycotic granuloma as opposed to tuberculosis which exhibits epithelioid cell tubercles, with or without caseation, but seldom with cellular infiltration. Lung, x 200.

Though the bronchial wall contained organisms and was involved by adjacent proliferative reaction, the mucosa was not destroyed nor were any organisms seen within the lumen.

The ovaries, which had seemed normal grossly, presented, microscopically, typical proliferative lesions.

The tissue adjacent to the granulomata generally was not involved. In the heart, however, a diffuse, chronic, and subcute mycocarditis, with several focal gatherings of inflammatory cells was present (fig. 5).

The adrenal glands and gastrointestinal tract showed no evidence of disease.

Since the macroscopic picture of blastomycosis resembles that of histoplasmosis, the latter was the gross diagnosis.

*Case 2**.—A 1-year-old spayed female Boxer developed a draining sore on the neck, which healed spontaneously. Six weeks later, several skin pustules appeared and soon began to drain; the bitch became anorexic, listless, extremely weak, and blind. Both eyes bulged as if there were retrobulbar abscesses. When the dog failed to respond to huge doses of all available antibiotics, euthanasia was performed.

Necropsy revealed widespread lesions with considerable involvement of the lung.

Histology.—Two sections of lung revealed a circumscribed proliferative lesion

*Specimen obtained through the courtesy of P. Jolly, M.D., who made the initial diagnosis.

with only a slight degree of giant cell formation and a large number of organisms. The most striking difference from case 1 was the extensive caseation necrosis.

*Case 3***.—A 3-year-old Beagle had a persistent, severe cough for ten months prior to his death. He had developed orchitis after a fight two months before death and when there was no response to antibiotics, the testicle was removed. In spite of continued antibiotic therapy, purulent material drained from the operative site and temperature fluctuations were marked. He then began to cough severely, rapidly worsened, and died.

The excised testicle, examined elsewhere, showed areas of necrosis with drainage to the surface, but was not examined microscopically.

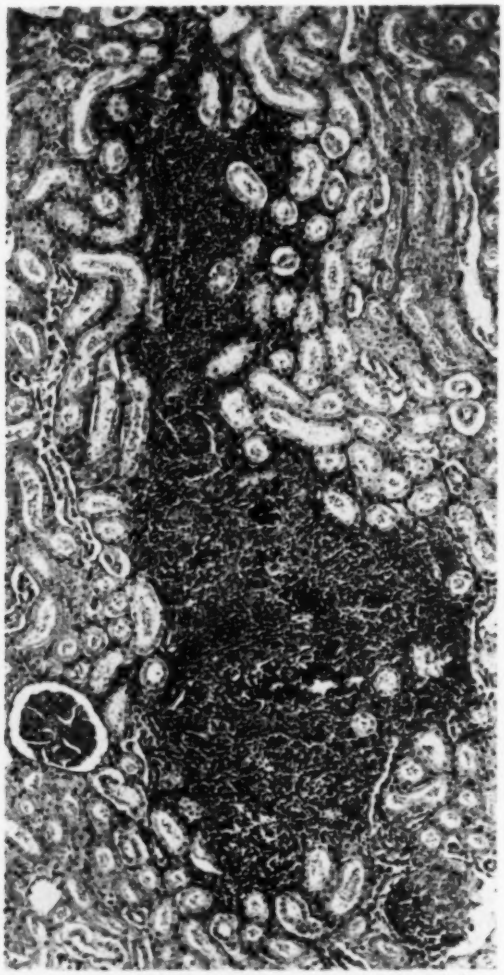

Fig. 7—Large cellular infiltrate interstitium of kidney (case 1) with extensive tissue destruction. Notice glomerular necrosis (right lower corner). Organisms are visible in the center of the infiltrate. Stain, PAS; x 90.

Necropsy Findings.—When examined by us a week after death, decomposition had begun, so a complete necropsy was impossible. The lungs contained (fig. 8) thousands of nodules, 1 to 10 mm. in diameter, which were irregular, firm, and grayish yellow. A triangular, 3-cm. caseated area replaced much of the parenchyma of the left lower lobe. The regional nodes were enlarged and appeared caseated. A sinus tract in the scrotum could be traced to a granulatory tissue which contained a grayish, thin pus.

Micropathology.—Lesions were limited to the lung and scrotal tissue, the latter containing innumerable organisms and extensive regions of necrosis. In the lung, sheets of organisms completely replaced the alveolar structure, with round cells predominating. The bronchial mucosa (fig. 9) was destroyed in places and the lumen of many bronchi contained organisms and leukocytes. Blastomyces were found in branches of the pulmonary vessels (fig. 10), indicating hematogenous spread.

Cultures were negative as the organisms were overgrown by saprophytes.

This case differed from the other two in having organisms in the blood vessels and in the bronchi, the involvement of the bronchial mucosa, the lack of significant pleural change, and the lack of massive dissemination of the disease.

DISCUSSION

The paucity of blastomycosis cases reported in the veterinary literature may be because the disease is not recognized either clinically or at necropsy.

The pattern of the disease in the dog is similar to that in man. The commonest symptoms are lethargy, dyspnea, fever, subcutaneous abscesses, ulcers, with laryngeal and occasionally osseous involvement. The course of the disease in animals apparently is more rapid than in man, averaging only a month after the initial examination. However, a fulminating case of twenty days' duration in man was recently reported.[30] The most common manifestation of the disease in man is a cutaneous lesion which is secondary to hematogenous dissemination

**Specimen obtained through the courtesy of J. S. Moore, D.V.M., and H. C. Schadler, D.V.M., Cincinnati, Ohio.

Fig. 8—Right upper lobe of lung of Beagle (case 3) showing numerous subpleural granulomatous scattered lesions varying in size from 1 to 10 mm.

from the primary pulmonary focus. One case with a solitary skin lesion has been reported in an animal.[27] More canine than human cases with eye involvement have been reported. Unfortunately, there are no reports on the pathology.

The deep fungous diseases, with rare exceptions, have a predilection for the human male. Children are equally susceptible but above 10 years of age about seven males succumb to histoplasmosis for every female.[30] Experimentally, male mice succumb to histoplasmosis within a month after intravenous infection, but females live longer. With blastomycosis, approximately eight or nine human males become ill for every female.[12,14] From our small series of dogs no conclusion can be drawn on sex susceptibility. In man, there seems to be no racial predilection to this disease[5] as there is with coccidioidomycosis for the nonwhite races.[32] In dogs, the infection has been reported in 3 Boxers, all females, but not more than once in any other breed.

There are two major clinical forms of the disease, cutaneous and systemic. A controversy exists as to the site of the primary lesions. Saunders,[28] discussing a case of apparent aural cutaneous blastomycosis in the dog, concludes that lesions, first seen on the ear, must have been the primary site, since when they were removed surgically a fatal systemic disease developed. No radiograph was taken of the chest before or immediately after surgery.

Schwarz and Baum[5] believe that the lung is most often the site of the primary lesion. Small pulmonary lesions may be difficult to find both on radiographs and at autopsy. Masses as large as 9 by 6 by 6 cm., when located in the retrocardiac shadow, have been overlooked on radiographs. Schwarz and Baum[5] also point out that the skin lesion usually begins as a subcutaneous nodule, papule, or furuncle which only in the course of the disease breaks down to form an open lesion. They cite three cases of known primary infection in the skin in man, in all of which regional lymphadenopathy was present. In none of the cases of so-called "cutaneous infection" was this found.

Table 1 is a summary of the more important positive clinical findings in dogs. It does not include the 2 cases of Meyer,[17] as only the title of his paper was published, nor the 3 cases of Menges.[38]

Although nearly all affected dogs had pulmonary lesions, cutaneous manifestations were the most common initial symptom. In no instance was regional lymphadenopathy observed. One dog[27] which suf-

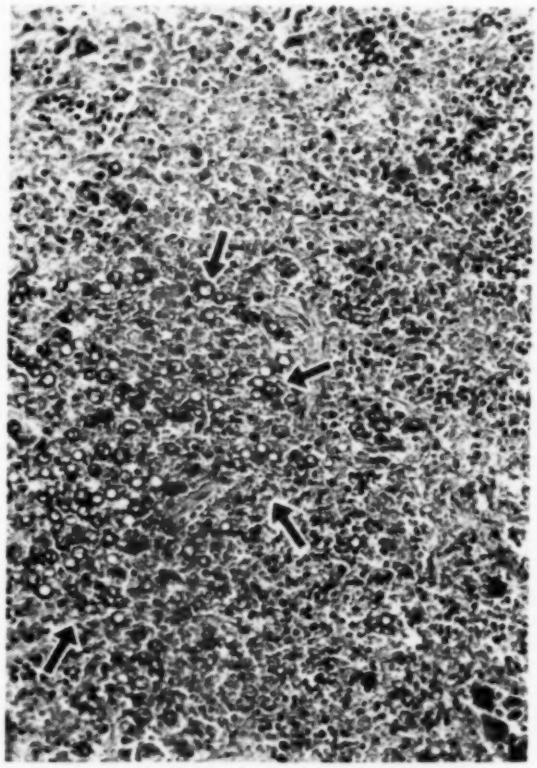

Fig. 9—Lung of Beagle (case 3) showing consolidation with wandering cell infiltrate, deposition of debris, and fibrosis. The large numbers of Blastomyces dermatitidis organisms are indicated by arrows. x 160.

fered from the chronic, slowly spreading, solitary lesion, the type seen most frequently in man, was incompletely described as follows: "There is no evidence of systemic disease." However, pulmonary lesions can heal with minimal scar formation.[5]

TABLE I—Clinical Findings In Blastomycosis for 19 Animals

Clinical findings	Total pos. findings*	Clinical findings	Total pos. findings*
Sex: male	8	Ocular manifestations	4
female	6	Dyspnea and cough	3
Pulmonary lesion	17**	Temperature elevated	6
Thoracic adenopathy	6†	normal	2
Skin lesion	7	Lameness	2‡
Anorexia	5	Orchitis	1

*Only positive findings are reported to assure accuracy. **One animal was not necropsied, but was dyspneic. Only incomplete findings were reported in the other. †Case three is not included, even though adenopathy was present grossly; see text. ‡A bone lesion was present in 1 animal. The other was not necropsied.

Riser's case (case 12 of Ramsey and Carter[16]) is difficult to accept as primary osseous blastomycosis without history of exposure of the bone.

The locus where disease is first observed is not necessarily the site of primary infection. In spite of absence of pulmonary symptoms, lungs were often heavily involved in man and in all reported cases in dogs but one.

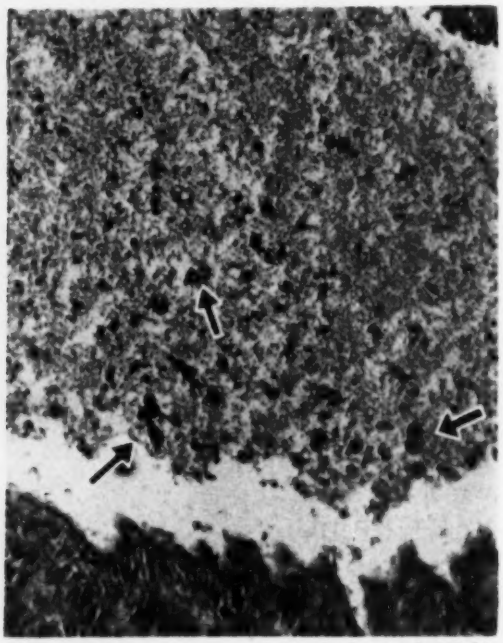

Fig. 10—Pulmonary artery of Beagle (case 3). Within the postmortem blood clot are numerous yeast cells (arrows). x 160.

The diagnosis of blastomycosis is not difficult if pus or scrapings from the skin are suspended in a 10 per cent potassium hydroxide solution. After twenty minutes, the typical double-walled, single-budding yeast cells of 8 to 24 μ can be clearly seen. These must be distinguished from air bubbles, oil droplets, and nonpathogenic yeasts.

The diagnosis should be confirmed by culture. The fungus grows well at room temperature. We use Sabouraud's dextrose agar to which 20 units of penicillin and 40 units of streptomycin per milliliter are added. When a mount of the filamentous, grayish white colony is placed in lactophenol cotton blue stain, septate hyphae, and lateral sessile spores are found. The gross appearance of the colony at room temperature and its culture mount may be confused with *Histoplasma capsulatum*, but in the latter, pathognomonic tuberculate spores appear after two to three weeks. *Blastomyces dermatitidis* is a biphasic fungus which can be transformed into a yeastlike organism at 37 C. if the following criteria are met: (1) heavy inoculum, (2) uncoagulated protein in the medium, and (3) stoppered flask.

Animal inoculation is also an excellent adjunct to diagnosis, intraperitoneal injection of mice being a common method. At the end of thirty days, or when the animals die, the lungs and liver are examined for the double-walled, budding yeast cells.

Skin testing in dogs can be accomplished by the intradermal injection, in the flank or neck, of a concentrated blastomycin antigen.*

Any induration greater than 5 mm. after forty-eight hours indicates a positive result. As *B. dermatitidis* is not a good antibody producer, a negative skin test does not rule out the disease. However, a positive test is nearly conclusive evidence of *B. dermatitidis* infection.

A serological test for this disease is run by the Communicable Disease Center, U. S. Public Health Service, Chamblee, Ga.

As a final adjunct to diagnosis, histological examination of biopsy and necropsy specimens is invaluable. The organism stands out brilliantly, especially when

*Commercially available from Parke, Davis & Co., Detroit, Mich.

stained by the periodic acid Schiff method.

In man, successful treatment has been accomplished with stilbamidine and 2-hydroxy-stilbamidine.[34-37]

SUMMARY

1) The literature on North American blastomycosis in the dog is summarized and three new case reports are added, two with complete necropsy findings. The course and characteristics of blastomycosis in man and dog are compared.

2) It is concluded that the lungs are the primary site of infection in all cases of blastomycosis except those where a definite inoculation site is known. Thus far, only three such cases have been reported in man and none in the dog.

3) A brief review of the mycology and diagnosis of blastomycosis is presented.

4) The severe involvement of the heart, liver, and ovary in case 1 was unusual.

5) The demonstration of organisms in vessels in case 3 illustrates the mode of dissemination.

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The Action of Adrenocorticotropic Hormone on Circulating Eosinophils in Dogs—A Proposed Method for Evaluating Adrenal Cortical Function

(An Abstract)

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Adrenocorticotropic hormone (ACTH) injection in man and certain laboratory animals is known to result in a marked decrease in circulating eosinophils. This is related to an increased secretion of adrenal cortical hormone, since it does not occur in adrenalectomized animals or in diseases in which the adrenal cortex has been destroyed.

In the study reported here, ACTH* was administered intramuscularly to dogs in doses of 5 to 50 I. U. A direct eosinophil count was made immediately prior to, and at hourly intervals up to seven hours following, the injection of ACTH.

A progressive fall in circulating eosinophils followed the injection of ACTH. At seven hours, an average fall of 91 per cent (range 75 to 99%) was observed. The initial eosinophil counts (*i.e.*, those made before ACTH administration) varied from 10 to 1,285 eosinophils per cubic millimeter. There did not appear to be any relation between the initial count and the percentage of decrease, nor was there a significant difference in the response to the maximum or minimum doses of ACTH. The dogs employed in this study were either normal animals or those suffering from some disease in which there was no reason to suspect an adrenal cortical deficiency. The presence of such diseases did not significantly alter the eosinophil response.

In man, the circulating eosinophil response to ACTH is employed as a screening method for evaluating the function of the adrenal cortex. The work reported here forms the basis for a similar test in dogs. The following method is suggested: A direct eosinophil count is made and immediately following this 10 I.U. of ACTH is injected intramuscularly. Seven hours later, a second eosinophil count is made. A decrease of 70 per cent or more in circulating eosinophils is considered indicative of a satisfactory adrenal cortical response.

The original article appeared in the American Journal of Veterinary Research, 15, (Oct., 1954): 489-494.

*The ACTH used in these studies was supplied by the Veterinary Research Division, Armour Laboratories, Chicago.

Bracken Poisoning in Cattle

When 11 heifers were fed an experimental ration of 60 per cent sun-dried bracken, all developed signs of poisoning in thirty-two to eighty-six days. One was destroyed for tissue analysis. The others were allowed to die or were destroyed when comatose. Widespread hemorrhages and a late temperature rise to 108 F. were characteristic. The essential lesion was bone marrow damage, resulting in thrombocytopenia and leukopenia. Red blood cells did not decrease in number until bleeding became severe but showed a downward trend in hemoglobin percentage. Bacterial invasion of the blood was concomitant with terminal fever, with bacterial infarctions of the liver, kidney, and lungs resulting.

The subcutaneous administration of vitamin B_1 or vitamin B complex, throughout the experiment, had no influence on the course of the disease. Thus, a vitamin B_1 deficiency was not a factor in cattle as it seems to be in bracken poisoning of the horse and the rat. When 5 calves, 62 to 105 days of age, were likewise fed fresh or dried bracken, 3 developed a typical syndrome from the twenty-ninth to the thirty-seventh day, while 2 died suddenly from heart failure on the twenty-ninth and twenty-third days without hemorrhages or a rise in temperature. All showed severe bone marrow damage.—*J. Comp. Path. and Therap., Jan., 1954.*

For diagnosing traumatic gastritis, the metal detector is an experimental aid which may prove useful. However, it is not essential, a good clinical examination being more reliable.—*M. G. Fincher, D.V.M., in Guernsey Breeders' J., Sept., 1954.*

Nalorphine Hydrochloride as a Narcotic Antagonist in Dogs

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RECENTLY, nalorphine hydrochloride* has been successfully established as an agent counteracting the depression due to morphine, codeine, heroin, dilaudid,® dromoran,® meperidine (demerol®), and methadone.[1-4,8] This agent antagonizes morphine at the cellular site of action.[5] It is not effective against depression due to barbiturates and volatile anesthetics.[1]

Early observations regarding the properties of nalorphine were made on dogs[3,4]; additional reports indicate that it is effective in antagonizing morphine delirium in cats.[7,8] At the present price of this drug, the dosages reported in experimental studies[3,4] are too expensive to be economically feasible for use by the veterinarian. For this reason, and since dosages in man are much lower,[6] an investigation was undertaken to determine whether the compound would exert its antagonistic properties in dogs in lower concentrations.

Healthy dogs, of various breeds and ages, were routinely depressed with meperidine, morphine, methadone, or dilaudid. When no further increase in depression could be observed, nalorphine was administered intravenously in various dosages.

Antagonism to Morphine.—Eight dogs were used in the series where morphine served as a depressant. The weight of the animals, the dosage schedule, and the responses to nalorphine are shown in table 1.

TABLE 1—Effect of Nalorphine on Morphine Depression

Dog (No.)	Weight (lb.)	Quantity of morphine	Quantity of nalorphine	Approximate dosage-weight relationship	Results of nalorphine administration
1	23	100 mg.(1.5 gr.)	5 mg.	1 mg./5 lb.	Prompt recovery.
2	48	100 mg.(1.5 gr.)	5 mg.	1 mg./10 lb.	Prompt recovery; ½ hour later slight depression.
3	18	120 mg.(2.0 gr.)	2 mg.	1 mg./10 lb.	Depression markedly ameliorated.
4	22	200 mg.(3.0 gr.)	2 mg.	1 mg./10 lb.	Depression markedly ameliorated.
5	26	240 mg.(3.5 gr.)	2 mg.	1 mg./13 lb.	Immediate response evident; moderate depression remained.
6	19	1,770 mg.(26.5 gr.)	10 mg.	1 mg./2 lb.	Relieved convulsions; depression still evident; uneventful recovery.
7	19	3,440 mg.(52.9 gr.)	20 mg.	1 mg./1 lb.	Temporarily relieved convulsions; death 70 minutes after morphine.
8	22	150 mg.(2.5 gr.)	None	.....	Animal remained depressed for 5 hours.

The case history of dog 1 represents the typical response of the narcotized animal. Five minutes after 100 mg. of morphine sulfate was injected subcutaneously into the dog, it defecated, and in forty-five minutes it showed marked depression. Nalorphine, 5 mg., was then injected intravenously. Within thirty seconds, the dog appeared normal, and no relapse was evident during the six hours that the dog was under observation.

From previous trials, and from the work reported here, it appears that a nalorphine dosage of 1 mg./5 lb. of body weight (1 cc. nalorphine/25 lb.) is adequate. By this standard, dog 2 received an inadequate amount of nalorphine. However, there still was an immediate response to the drug. Likewise, with dogs 3, 4, and 5, the nalorphine dosage used was less than adequate. Nevertheless, even at the light dosage of 1 mg./10 lb. some recovery from morphine sedation was evident.

Dogs 6 and 7 were given convulsive doses of morphine (intraperitoneal route). With dog 6, the injection of nalorphine relieved the convulsions but sedation was still evident, although the recovery was uneventful. Dog 7, which was given the largest dose of morphine, received only temporary relief and expired during a convulsion.

Antagonism to Related Compounds.—A nalorphine dosage of 1 mg./5 lb. of body weight was used to counteract the depression due to dilaudid, demerol, and methadone. In every instance, there was a prompt response to nalorphine administration. The weight of the animals, the drugs, the dosage schedule, and the response to nalorphine are summarized in table 2.

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*Nalorphine hydrochloride N.N.R. (N-allylnormorphine) is a derivative of morphine in which the N-methyl group of morphine is replaced by an N-allyl group. The product is marketed under the trademark "nalline hydrochloride" by Merck and Company, Rahway, N. J.

TABLE 2—Effect of Nalorphine on Narcotic Depression

Dog (No.)	Weight (lb.)	Drug and quantity	Quantity of nalorphine	Approximate dosage-weight relationship	Results of nalorphine administration
9	20	Dilaudid 12 mg.(3/16 gr.)	4 mg.	1 mg./5 lb.	Prompt recovery.
10	31	Dilaudid 13 mg.(1/5 gr.)	5 mg.	1 mg./5 lb.	Prompt recovery.
11	18	Demerol 100 mg.	4 mg.	1 mg./5 lb.	Prompt recovery.
12	34	Demerol 150 mg.	None	.....	No depression with demerol; hence, no nalorphine given.
13	21	Demerol 175 mg.	4 mg.	1 mg./5 lb.	Depression markedly ameliorated.
14	23	Methadone 40 mg.	5 mg.	1 mg./5 lb.	Prompt recovery; still slight depression.
15	30	Methadone 50 mg.	6 mg.	1 mg./5 lb.	Prompt recovery.
16	29	Methadone 50 mg.	6 mg.	1 mg./5 lb.	Prompt recovery.

In 2 dogs (dogs 13 and 14), 1 of which had received demerol and 1 methadone, the recovery was incomplete. Nevertheless, the decrease in sedation following nalorphine administration was pronounced. The action of nalorphine on demerol sedation supports the work of Winter *et al.*[8]

Discussion.—Experiments with nalorphine indicate that a dosage of 1 mg./5 lb. of body weight is adequate in the dog. This may be repeated as required. The wide margin of safety of nalorphine is indicated by earlier experimental data,[3,8] which show dosages 50 times as large as those reported here.

Nalorphine is effective against the depression caused by drugs closely related to morphine; it is ineffective against barbiturate and ether depression. Furthermore, it has been reported to be ineffective against apomorphine,[3] a finding which was confirmed in a short series of trials during part of this investigation.

At the dosage of 1 mg./5 lb. of body weight, the use of nalorphine in dogs is economically feasible in veterinary practice. It should prove to be a useful drug to the veterinarian in the clinic.

Summary.—Nalorphine, when used at a dosage of 1 mg./5 lb. of body weight, effectively counteracts the depression in dogs caused by dilaudid,® demerol,® methadone, and morphine.

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Effect of Milk Antibiotic Residues.—When ten volunteers, for five days, consumed milk with an antibiotic content such as is often found following treatment of mastitis in cows, streptomycin and chlortetracycline significantly lowered the number of the intestinal bacteria of the volunteers but penicillin had little effect.—*J. Milk and Food Technol., March, 1954.*

The Distribution of Terramycin.—The tissue distribution of terramycin® was examined in mice by fluorescent microscopy. It accumulated in the reticuloendothelial system and was highly concentrated in the liver and kidneys where it is excreted. It was lowest in muscular, bone, and nervous tissues.—*Vet. Bull., March, 1954.*

The Immunogenicity for Cattle of *Brucella Abortus* Strain 19 and M Vaccine (Huddleson)

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DESPITE THE fact that *Brucella abortus* strain 19 has been shown by controlled experiments and in the field to confer a useful degree of resistance to brucellosis in cattle, its use has disadvantages. These disadvantages include: (1) Only 50 to 80 per cent of vaccinated animals are protected against challenge with virulent Brucella; (2) it is relatively ineffective against extremely severe exposure; (3) there is a possible decrease in resistance with the passage of time after vaccination; and (4) there is stimulation of production of agglutinins which may persist at a diagnostic level into adult life, with attendant confusion of serological diagnosis. Because of these disadvantages, a continuing search has been made for improved vaccines. One of those recently advanced as an improved vaccine has been M vaccine (Huddleson).

Huddleson[1] reported that guinea pigs could be immunized against infection with virulent Brucella organisms by means of mucoid variants. Huddleson and Bennett[2] presented data obtained in 22 privately owned, infected herds in which M vaccine was used. The results of agglutinin tests were interpreted as an indication of resistance engendered by the M vaccine. It should be pointed out that in six of the herds all of the reactors were removed. There followed a series of reports[3-5] on the use of M vaccine in field herds as well as enthusiastic articles in the lay agricultural press.

The results of controlled experiments with M vaccine did not become available until the report of Green in 1950,[7] in which no difference was found in the infection rates among M-vaccinated and unvaccinated cattle. Animals vaccinated with strain 19 were not included in this trial. Because of continued interest in M vaccine at this time, the experiment reported here was initiated.

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MATERIALS AND METHODS

In the spring of 1951, 126 unvaccinated Holstein-Friesian heifers ranging in age from approximately 1 to 11 months, and negative to the agglutination test, were purchased from various sources. The animals were held in isolation on two farms for five months during which all were found to be negative on successive monthly agglutination tests.

The animals were assigned to groups according to age, for vaccination on Sept. 28, 1951. Eighteen calves 6 to 9 months of age and 18 heifers 10 to 16 months of age were each inoculated subcutaneously with 5 ml. of *Br. abortus* strain 19 vaccine which had been freshly prepared in this laboratory according to the U. S. BAI standards for this vaccine. The animals in comparable groups of 18 calves and 18 heifers, respectively, were each inoculated subcutaneously with 1 ml. of M vaccine furnished by Dr. I. F. Huddleson. Animals in an additional group of 18 sexually mature heifers received 1 ml. of M vaccine intranasally, by means of a special cannula supplied by Dr. Huddleson. Thirty-six animals remained unvaccinated to serve as controls.

Tests were made of the agglutinin titers of all animals at monthly intervals and more frequently immediately after vaccination. End titers of serums were determined by means of the conventional tube-agglutination test using antigen supplied by the U. S. BAI.

Antigens consisting of mucoid cells were prepared by inoculating Roux bottles containing Albimi agar directly with M vaccine suspension. Cells from part of the bottles were harvested in phenolized (0.5%) saline (0.85% NaCl). Cells from the remainder of the Roux bottles were harvested in phenolized saline (0.5%), adjusted to pH 9 with Na_2Co_3. The suspensions were adjusted to the same turbidity as standard tube antigen by means of a Coleman nepho-colorimeter. Serums from all animals inoculated with M vaccine and all controls were tested with these antigens at four, six, eleven, fourteen, eighteen, and thirty-two days after vaccination. Hemocultures were made from these animals at the same time by a technique previously described.[9]

Breeding by natural service was initiated in August, 1952. The animals were exposed to infection on Feb. 16, 1953, when most of them were four and one-half to six months in gestation. The mean gestation time at exposure was 146 days, with a range of thirty-two to 177 days. The material used for exposure was prepared from a lyophilized suspension of *Br. abortus* strain 2308 furnished by Dr. C. A. Manthei of the U. S. BAI. This was re-

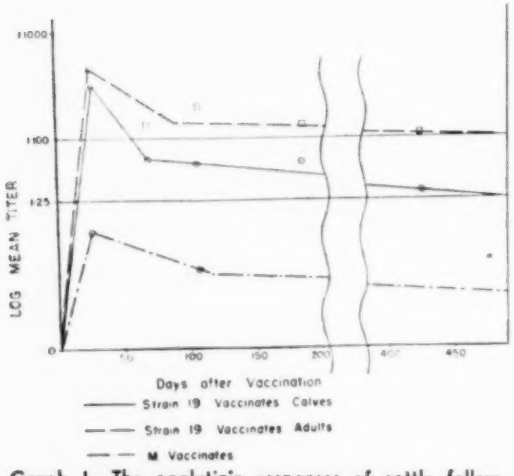
constituted with saline, and streaked directly on 2-1 agar plates.[10] After three days' incubation at 37 C., the growth was examined for colonial morphology by means of a stereoscopic microscope with obliquely transmitted light. One hundred smooth colonies were picked on to Albimi agar slants which were incubated at 37 C. for twenty-four hours. The growth from these slants was harvested in 0.85 per cent saline and adjusted turbidimetrically to a concentration of 10^8 cells per milliliter. Viable cell counts averaged 6×10^7 cells per milliliter. Half the animals in each group received 0.1 ml. of this suspension in the conjunctival sac. The other half of the animals received 0.1 ml. of a 1:10 dilution of the original suspension. Thus, half the animals were exposed to 6×10^5 (600,000) and half to 6×10^6 (6,000,000) organisms. All of the animals in one barn received the smaller inoculum. They did not comprise the entire group. Because of space limitations, some of the animals which received the smaller inoculum had to be kept in the barn with animals inoculated with the larger number of organisms.

At each calving or abortion, cultures for the presence of Brucella were made from uterine materials and udder secretions. The materials examined and the methods employed were described earlier.[11] In addition, use was made of the selective medium of Kuzdas and Morse.[12]

Nonpregnant animals and those which had presumptive evidence of infection, such as high agglutinin titers but negative uterine and milk cultures, were slaughtered at intervals after parturition and cultures were made from various lymph nodes.

RESULTS

The Agglutinin Response to Vaccination.—The agglutinin responses following inoculation with strain 19 or M vaccines are shown in graph 1. Those animals vaccinated with strain 19 developed the characteristic pattern of agglutinin response previously observed with this vaccine. The titers of the animals vaccinated when sexually mature remained higher than those observed in the serums from animals vaccinated as calves. At the time of exposure, 16 months after vaccination, almost all of those vaccinated as adults were suspects or reactors, with an average titer of 1:150. At the same time, 11 of the 18 vaccinated as calves had attained a negative test status, while 2 were persistent reactors and 5 were suspects.



Graph 1—The agglutinin responses of cattle following vaccination with strain 19 or M vaccines.

Among the 36 animals inoculated subcutaneously with M vaccine, all but 9 manifested some agglutinins for the standard antigen during the first month following vaccination. The highest titer observed was 1:200, and no animal had a titer higher than 1:50 longer than 194 days after vaccination. A relationship between the age of the animals at the time of vaccination and their agglutinin response was not apparent.

Among the 18 animals inoculated intranasally with M vaccine, only 6 manifested significant agglutinins. The highest titer observed was 1:800 and significant agglutinins did not persist beyond 180 days after vaccination in any case.

None of the animals developed agglutinins for the mucoid antigens.

Brucella organisms were not recovered from the blood of M-vaccinated cattle, nor from control animals in intimate contact with them.

The Response to Exposure.—The responses of vaccinated and control animals to exposure with 6×10^5 organisms are summarized in table 1.* Of 17 control animals, 8 had abnormal terminations of pregnancy and 9 calved at term. Brucella were recovered from 11, and 13 manifested agglutinin titers of 1:100 or higher during the postexposure period. Brucella were isolated from the colostrum and placenta of 1 animal which calved at term and never developed agglutinins higher than incomplete at 1:50.

Of 18 animals vaccinated with strain 19, 6 aborted, 11 calved normally, and 1 was not pregnant at exposure. Brucella were recovered from 6, and 14 had titers of 1:100 or higher on at least one postexposure test.

Of 26 animals vaccinated with M vaccine,

*Because of the large number of animals in this study, the responses of individual animals are not presented here. These have been prepared in mimeographed form and will be furnished on request.

10 aborted or had premature calves, 14 calved at term, and 2 were not pregnant at exposure. Brucella were isolated from 20, and 17 developed agglutinin titers of 1:100 or higher. Brucella were isolated from milk or uterine materials from 3 animals which had calved at term but which did not manifest agglutinin titers above 1:25. An additional heifer which had calved at term and had a titer of incomplete agglutination at 1:100 yielded positive uterine and colostral cultures.

The responses of the animals exposed to 6 x 10^6 organisms are summarized in table 2. Of 18 controls, 15 aborted or had premature calves, 1 calved at term, and 2 were not pregnant at exposure. Brucella were recovered from 16 animals, and 17 had agglutinin titers of 1:100 or higher after exposure.

Of 17 animals vaccinated with strain 19, 10 aborted or had premature calves and 7 calved at term. Brucella organisms were isolated from 11, and 16 had agglutinin titers of 1:100 or higher on at least one test after exposure.

Of 27 cattle vaccinated with M vaccine, 21 aborted or calved prematurely, 5 calved at term, and 1 was not pregnant at exposure. Brucella were recovered from all 27 animals, and 25 had agglutinin titers of 1:100 or higher. Two heifers which had calved at term and were shown to have mammary and uterine infection, respectively, developed titers of only incomplete agglutination at the 1:50 dilution.

A summary of the results on the basis of bacteriologically proved infection is shown in table 3.

DISCUSSION

This experiment was designed primarily to evaluate the relative immunogenicity for cattle of strain 19 and M vaccines. The data clearly show the ineffectiveness of M vaccine under the conditions of the trial. Statistical analysis, by the *chi*-square test, of the incidence of abortion and infection observed in all M-vaccinated animals showed them not to be significantly different from the incidence of abortion and infection among the unvaccinated controls. Similar analysis of the incidence of infection in strain 19-vaccinated cattle revealed a significant degree of protection engendered by strain 19. The difference in abortion rates between all strain 19-vaccinated and unvaccinated control cattle was also highly significant.

The results obtained confirm and extend those obtained in other controlled comparative studies of strain 19 and M vaccines.[13,14] In these trials, strain 19 engendered a significant degree of resistance to infection, while M vaccine failed to engender such resistance. The failure of M vaccine to induce a useful degree of resistance in cattle in privately owned infected herds has been described recently.[15]

The design of the present experiment also included attempts to answer several secondary questions. These include: (1) the effects of two levels of exposure on the response of vaccinated animals; (2) the influence of the age at vaccination on the degree of resistance engendered; and (3) a comparison of the subcutaneous and intranasal routes of administration of M vaccine.

Analysis of the data on these subsidiary points presents some difficulty because of the necessarily small numbers of animals which comprise the subgroups. A distinct influence of the level of exposure on resistance in all groups is evident. The tenfold difference in numbers of organisms used for challenge of these groups resulted in increases of the infection rates from 64.7 per cent to 88.8 per cent among the controls; from 33.3 per cent to 64.7 per cent

TABLE 1—Summary of the Responses of Vaccinated and Unvaccinated Cattle to Conjunctival Exposure with 6 x 10^5 Brucella Abortus Strain 2308

Groups of cattle	Abortions or premature births		Parturitions at term[1]		Nonpregnant		Total animals	
	Infec.[2]	Noninfec.[3]	Infec.[2]	Noninfec.[3]	Infec.[2]	Noninfec.[3]	Reactors[4]	per group
Control	7	1	4	5	0	0	13	17
Strain 19—calves	1	0	0	7	0	1	6	9
Strain 19—adults	5	0	0	4	0	0	8	9
M—calves	6	0	2	1	0	0	7	9
M—adults	1	1	5	1	0	1	5	9
M—intranasally	2	0	3	2	1	0	5	8

[1]Parturitions occurring at 280 ± 10 days of gestation are considered as full term. [2]Animals are classified as infected if Brucella abortus was isolated from fetus, placenta, colostrum, milk, or tissues at necropsy, [3]otherwise as noninfected. [4]Animals are classified as reactors if on any test following exposure they had serum agglutinins at a titer of 1:100 or higher.

TABLE 2—Summary of the Responses of Vaccinated and Unvaccinated Cattle to Conjunctival Exposure with 6 x 10^6 Brucella Abortus Strain 2308

Groups of cattle	Abortions or premature births		Parturitions at term		Nonpregnant		Reactors	Total animals per group
	Infec.	Noninfec.	Infec.	Noninfec.	Infec.	Noninfec.		
Control	15	0	0	1	1	1	17	18
Strain 19—calves	6	0	0	3	0	0	8	9
Strain 19—adults	4	0	1	3	0	0	8	8
M—calves	6	0	3	0	0	0	7	9
M—adults	7	0	2	0	0	0	9	9
M—intranasally	8	0	0	0	1	0	9	9

among the strain 19-vaccinated cattle; and from 76.9 per cent to 100 per cent among the M-vaccinated animals. The experimental groups had the same relative position with respect to infection rate with both levels of exposure. Statistical analysis indicates that the number of abortions and infections among the M-vaccinated animals was not significantly (5% probability level) different from that of the controls at either level of exposure. On the other hand, while the strain 19-vaccinated animals were significantly more resistant than the controls to exposure with 6 x 10^5 organisms, the difference between strain 19-vaccinated and control animals exposed to 6 x 10^6 organisms was not statistically significant, but the trend was in agreement with all previous results. At the higher level of exposure, the strain 19-vaccinated animals were significantly more resistant than the M-vaccinated animals. These apparent anomalies seem to be attributable in large part to the small number of animals in the respective groups.

An interesting and important aspect of the work with the lower exposure level is the number of infected animals which failed to develop agglutinins of diagnostic significance. In most cases, these heifers shed Brucella for short periods. Their ability to produce agglutinins was demonstrated by inoculation with killed *Br. abortus* cells. It would appear that, although some localization in the uterus or mammary gland had occurred, there was little or no localization in the reticulo-endothelial system of these individuals exposed with only 6 x 10^5 organisms. It is possible that this phenomenon is related to what Gregory[16] has described as "silent entry" by small numbers of organisms into the highly susceptible gravid uterus, mammary gland, or both.

Analysis of the influence of age at vaccination upon resistance reveals no clear-cut differences. At the lower exposure level, animals vaccinated as calves with strain 19 were significantly more resistant than those vaccinated when sexually mature (significant at the 5% probability level). Such a difference was not apparent in the age groups exposed with 6 x 10^6 organisms, nor among the M-vaccinated animals. Other trials discussed elsewhere[17] have shown no difference in the resistance engendered by vaccinating calves or adults. It is probable that the difference observed in this study was more apparent than real and is attributable to the small numbers of animals.

Differences in resistance attributable to the route of administration of M vaccine were not observed.

The results obtained emphasize again one of the most serious disadvantages of strain 19—the development of agglutinins of diagnostic significance following exposure even in animals which resist infection. This was most marked among animals vaccinated as adults, but occurred also to some extent among animals vaccinated as calves. Despite this disadvantage, and the failure of strain 19 to engender a solid immunity to infection, the usefulness of strain 19 in the control of bovine brucellosis has been well es-

TABLE 3—Summary of Infection Rates (Bacteriologically Proved) Among Vaccinated and Control Cattle Following Exposure

Groups of cattle	Level of exposure: 600,000 organisms (No.)	600,000 organisms (%)	6,000,000 organisms (No.)	6,000,000 organisms (%)	Total (No.)	Total (%)
Controls	11/17[1]	64.7	16/18	88.8	27/35	77.1
Strain 19 vaccinates	6/18	33.3	11/17	64.7	17/35	48.5
M vaccinates	20/26	76.9	27/27	100	47/53	88.6

[1]Number infected/number exposed.

tablished. This and other controlled studies, as well as the field investigation previously cited, clearly indicate that M vaccine does not have immunogenicity for cattle sufficient to warrant its use instead of strain 19.

SUMMARY

Groups of calves and sexually mature heifers were vaccinated with strain 19 or M (Huddleson) vaccines. During the first pregnancy, the principals and unvaccinated control cattle were exposed to *Brucella abortus* strain 2308 by the conjunctival route. Half the animals in each group received a challenge inoculum of 6×10^5 organisms, the other half received 6×10^6 virulent organisms.

Strain 19-vaccinated animals were significantly more resistant to induced infection than unvaccinated controls. M-vaccinated animals were not significantly more resistant than the controls.

The significance of the results is discussed.

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Laboratory Studies on Erysipelas. 1. Immunization Against Swine Erysipelas and Susceptibility of Swine to Challenge

(An Abstract)

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Vaccination of pigs with an aluminum hydroxide-adsorbed, *Erysipelothrix rhusiopathiae* bacterin and subsequent challenge using a scarification procedure, similar to the method of Fortner and Dinter, are described, as well as attempts at enhancing reactions to *Ery. rhusiopathiae* challenge by previous hog cholera immunization and by administration of cortisone.

Sixteen pigs were divided into 2 equal groups, 1 pig from each of 8 litters represented in each group. Each pig in one group was vaccinated with one dose of 5 cc. of erysipelas bacterin, subcutaneously into the axilla; the second group served as unvaccinated controls. Approximately three weeks postvaccination, both vaccinated and unvaccinated controls were challenged by the application of one of three *Ery. rhusiopathiae* cultures

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to each of three vertical scarifications produced on one side of the pig, with a fourth scarification left untouched as a control. Within twenty-four hours, 7 of the 8 controls showed marked swelling and erythema at scarification sites, which spread to a maximum of about 3 inches during the third and fourth days, and then begin to subside. A definite temperature rise was noted in all. Only minimal swelling, which subsided rapidly, occurred in all vaccinated pigs and temperatures remained normal. In a second experiment involving 23 pigs vaccinated with four different lots of bacterin, and one group of 8 controls, similar results were obtained.

These results indicate that the scarification procedure used by European workers can be duplicated in carefully controlled laboratory studies. Using as a criterion the lack of skin lesions coupled with no change in body temperature after challenge in vaccinated pigs, in comparison with the opposite response in controls, the erysipelas bacterin appeared to confer satisfactory immunity to vaccinated animals.

A method of "preparing" pigs by prior vaccination against hog cholera was reported by Doyle, and Thomson and Gledhill, in an attempt to produce more uniform and intensive reactions to the scarification technique. Attempts to apply a similar method were unsuccessful. Five pigs vaccinated with 5 cc. of crystal violet vaccine and one month later challenged with virulent hog cholera virus, were observed for twenty-one days. The vaccinated and challenged pigs, and 5 unvaccinated controls, were then injected intramuscularly with 7 ml. of *Ery. rhusiopathiae* culture. Four of the 5 prepared pigs and all controls developed hyperthermia following injection of this culture, and 2 controls developed erythema at the injection site. No other deviations from the normal were noted.

As cortisone, in some cases, appears to affect the course of disease in laboratory animals, studies were instituted to determine if it would influence severity of response in pigs experimentally infected with *Ery. rhusiopathiae*. Cortisone was administered to 8 erysipelas-susceptible pigs, as a single daily intramuscular dose of 5 mg. per pound of body weight for a total of fifteen days, starting two days before experimental infection. Four were injected intramuscularly in the ham with 10 ml. of culture, and 4 cortisone-treated pigs and 2 untreated controls were infected by scarification. One of the cortisone-treated, scarification-infected pigs died seven days postinfection, and *Ery. rhusiopathiae* was isolated from its tissues. All pigs scarified reacted as described in the first experiment, with no differences observed in severity of response between cortisone-treated or untreated animals. Those infected intramuscularly showed only minimal erythema at the injection site. It appeared, in all cases, that cortisone did, to some extent, delay the febrile period which then persisted slightly longer than in pigs not receiving the drug.

Isohemolytic Disease of Pigs

A 3-year-old Duroc sow which had produced four healthy litters lost the 24 pigs born alive in her fifth and sixth litters within nine to twenty hours after birth. All were sired by the same boar and seemed vigorous and healthy the first few hours after birth. Thereafter, the pigs rapidly became weak and severely anemic, with increased cardiac and respiratory rates. On necropsy, all tissues were extremely pale except the spleens which were enlarged and engorged with erythrocytes. The urine and serum were of normal color, neither hemoglobinurea nor icterus being observed, indicating little or no hemolysis. The fatal anemia could be explained by the blood-impacted spleen, having removed the agglutinated erythrocyte from the circulation.

Iso-antibody was demonstrated in the serum, colostrum, and milk from the sow as well as the stomach and the serum of the pigs. This antibody was active against the erythrocytes of the sire and of the 4 stillborn pigs in the last litter. The erythrocytes of the stillborn pigs were readily suspended in saline or normal serum, while those from affected pigs agglutinated spontaneously in each medium, and the clumped erythrocytes resisted resuspension. The sow had been vaccinated first with crystal violet hog cholera vaccine before farrowing her fourth litter, then with a rabbit-origin modified cholera virus vaccine about a month after her fifth impregnation. However, since the blood type of all the pigs in the last two litters appeared to be the same as that of the sire, it is possible that the iso-immunization was the result of repeated breeding of the sow to the same incompatible boar. This condition is similar to that which occurs in foals.—*Cornell Vet., Jan., 1954.*

[A similar condition was seen in April, 1932, when a Hampshire gilt farrowed 9 pigs which were healthy and active for about three hours and then died in a markedly anemic condition by the sixth hour. Their erythrocytes were agglutinated as black clots and their spleens were enlarged and black but, unlike the above, their livers and kidneys were a bluish-black and their serum was reddish, indicating some hemolysis.—W.A.A.]

Moldy Corn Poisoning in Greece.—Acute toxic encephalopathy of horses (moldy corn poisoning) had not been reported in Greece until December, 1952, when 11 horses were affected. All laboratory attempts to identify an infectious agent were negative. Necrosis and liquefaction of areas in the white substance of the cerebral hemispheres left cavities the size of a hen's egg when drained. These horses had been feeding on the cobs from moldy corn. —*Bull. Soc. Vét. Hellenique, April, 1953.*

Treating Bracken Poisoning

Since thiamine deficiency seems to be a factor in bracken fern poisoning, and since thiamine may not be available to the tissues until broken down to allithiamine, a new treatment for this poisoning was tried. The patient, a cow, was first given a direct transfusion of 700 cc. of blood. She seemed to rally but four days later it was believed she would not live another twenty-four hours. She was then given a 1,500-cc. blood transfusion, 1 liter of vitamin B complex solution, and intravenously 1 Gm. of thiamine dissolved in 10 cc. of onion juice prepared by cutting 12 onions in a Waring blendor and squeezing the pulp through a towel. She was greatly improved the next day but on the seventh day, when her stools again became tarry, she was given 1 pint of the onion juice orally, after which she made a complete recovery. This onion treatment has not been critically evaluated but is reported so that others may try it.—*Georgia Vet., July, 1954.*

Molasses Checks Bracken Poisoning

While bracken fern poisoning is common in horses and cattle, it is rare in sheep, possibly because of their grazing habits, and swine seem resistant since they can eat the roots without ill effects. In an experiment in Wales, when 6-month-old calves were fed toxic bracken, the 3 receiving bracken alone died in twenty-three to thirty-five days, and the 3 similarly fed but given liberal injections of various B vitamins three times a week died in twenty-one to fifty days. Two others which were given molasses mixed with the bracken, to overcome the possible inanition, ate more bracken than did the other calves yet were normal at the end of forty days. In what manner the molasses rendered the bracken nontoxic remains to be determined.—*Brit. Vet. J., Aug., 1954.*

[For the effect of heat on this toxin see J.A.V.M.A., Dec., 1953: 527 (abstr. from *Vet. Rec.*, Sept. 5, 1953).]

Enterotoxemia in Australian Lambs

Many young lambs have been lost in Australia from enterotoxemia following a period of succulent pasture growth. The Commonwealth Health Department which has, for many years, advocated the inoculation of pregnant ewes one month before lambing, with enterotoxemia vaccine, reports that those who have followed this advice have been free of heavy losses even in "flush" years. When losses occur, they recommend antitoxin, which gives protection for two or three weeks, followed by the vaccine when the lambs are 10 to 12 weeks old.—*J. Dept. Agric. South Australia, June, 1954.*

He Who Knows the Bovine Nose

We glean from the *Georgia Veterinarian* (July, 1954) that Dr. H. E. Kingman, Sr., believes that veterinarians might learn from laymen who work with all types of cattle about the significance of the "unphysiologic changes" in the utilitarian object known as the bovine critter's nose.

Normally, the bovine nose is moist, free from scales and exudate, with beads of water standing all over it; any departure from this invites investigation. Changes, associated with other clinical phenomena, may lead to a quick diagnosis; prognosis of a case is indicated by the repair or lack of repair indicated by these changes; and it serves as a guide to the level of safe iodine medication. The nose also provides a good handle for restraint but since nose tongs can transmit infection or make the animal bawl and frighten others, its use should be avoided except in emergencies. A cow's sense of smell is far superior to that of man's, enabling it to follow the trail of other animals, recognize strangers at a distance, or identify its own offspring. Furthermore, at detecting estrogenic substance the cow's nose is more delicate and accurate than any chemical test. Truly the bovine nose knows.

[And noseprints can be used for identification.—Ed.]

Treatment of Ascariasis in Zoo Animals with 1-Diethylcarbamyl-4-Methylpiperazine Hydrochloride

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THERE IS LITTLE specific published information available relative to the various disease conditions affecting zoo animals. Therefore, the principles and practices, new and old, of both the large and small animal fields must be adapted to the conditions peculiar to wild animals in captivity. The use of new materials is approached with great caution, however, especially when treating certain species, as the response is frequently unpredictable regardless of efficacy in domestic animals.

Ascariasis is a problem, not only in large zoo mammals, but also in smaller species of animals and reptiles. Caricide® (diethylcarbamazine dihydrogen citrate)* has been shown to have a marked antiascarid effect in both dogs and cats in the laboratory,[1,2] and extensive field use has confirmed its safety and efficacy. Recently, the successful treatment of ascariasis in some zoo animals, particularly tigers, lions, pumas, and pythons, has been reported.[3]

This report presents the results obtained in caricide therapy for ascariasis in various species of animals in the Woodland Park Zoo, Seattle, Wash.

TREATMENT

Caricide was administered orally to all animals at the recommended dosage of 25 mg. per pound of body weight. Occasionally, if the condition of the animal so indicated, treatment was repeated after a lapse of several days. With one exception, fasting before treatment or purgation after treatment were not practiced. Diagnosis in all cases was made on the basis of gross examination of the stools. Provision for microscopic examinations are now being made.

CASE REPORTS

Case 1.—A newly acquired young female lion, weighing 135 lb., had a rough coat and appeared extremely listless. Her appetite was poor and, on the second day after arrival, 2 ascarids were seen in her stool. Contrary to recommendations, she was fasted for twenty-four hours, after which a single dose of 3,400 mg. of caricide (8½ tablets) was administered, inserted in choice portions of meat which she consumed without hesitation. One hour later, she received a normal meal. Approximately eight hours after treatment, about a dozen ascarids were passed, and since that time there has been no evidence of a parasite problem. No other treatment was given. Her general appearance improved and she now seems to be in excellent condition.

Case 2.—A pair of 16-month-old Arctic polar bears, the male weighing 130 lb. and the female 100 lb., were in apparently good condition. These bears had been at the zoo only a short time when they were moved from their original den to one occupied by an older polar bear, presumably the source of ascarid infestation. Shortly thereafter, diarrhea was observed in both cubs. Gross examination of stools revealed blood, mucus, and an excess of bile. An oil laxative was prescribed, followed in four hours by sulfaguanidine at the recommended dosage. On the following day, the stools seemed more normal and both bears appeared hungry. An anthelmintic was administered at this time to alleviate the parasite problem. The male received 3,200 mg. of caricide (8 tablets) and the female 2,400 mg. (6 tablets), as a single dose, in the feed. Within twelve hours, a quart of ascarids was eliminated by the male bear, and about twice that amount by the female. Sulfaguanidine was administered for two additional days. After fourteen days, when the caricide therapy was repeated, a few more ascarids were eliminated. Six months later, when caricide was again administered, the results were negative and the bears have remained in good condition.

Case 3.—A 175-lb. male lion cub, in fair condition, received 4,400 mg. of caricide (11 tablets) inserted in meat. There was some inappetence for thirty-six hours followed dosing, but on the third day the

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Caricide is a trademarked product of Lederle Laboratories Division, American Cyanamid Co., Pearl River, N. Y.

*Chemical abbreviation for 1-diethylcarbamyl-4-methylpiperazine hydrochloride.

appetite improved. No results were evident until the eighth day after treatment, when 1½ pints of ascarids were passed. The cub's general appearance and condition have steadily improved since that time.

Case 4.—A male cougar cub, weighing 48 lb., and in good physical condition with no symptoms suggestive of parasitic infestation, was given 1,600 mg. of caricide (4 tablets) with an evening meal. This exceeds by one third the recommended dose of 25 mg. per pound of body weight. On the following day, each stool contained numerous ascarids. Except for frequent defecation, no adverse effects from overdosage were observed. Within thirty-six hours, elimination of the parasite ceased and, since that time, the cub has shown no evidence of reinfestation.

ROUTINE USE

Since excellent results had been obtained from the administration of caricide in several carefully selected cases, its routine use was instituted, particularly in newly acquired animals. All new arrivals are allowed a few days for adaptation to the new environment, after which caricide is administered at the recommended dosage.

While no elimination of parasites followed routine use of caricide in tiger cubs and adult black leopards, neither did adverse effects follow its use. In one instance, a tiger cub which had vomited several ascarids was immediately treated on a weight-dosage basis. No ascarids were found in the stools and, as far as could be determined, no further signs of parasitic infestation were apparent.

CONCLUSIONS

Caricide has been used extensively among the larger caged animals at the Woodland Park Zoo. The desired results, without toxic reactions, have been achieved in obvious cases of ascarid infestation. No dietary preparation prior to administration nor laxatives or enemas after administration seem necessary. The use of caricide is now routine, especially in newly acquired zoo animals.

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Nematodirus Infection in Calves

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A rancher who had never experienced trouble with parasitism in his cattle found, in the third year after moving his stock to a ranch which was practically all under intensive irrigation, that his calves were unthrifty. The fourth year on his ranch he sought veterinary assistance when he had lost 12 of the 150 calves and many of the remaining calves were poor and scouring.

All of the several calves received from this ranch, except 1 which had been raised separately, were stunted, thin, and showing evidence of scouring. When 1 calf (fig. 1) was killed it was conservatively estimated that 6,000 of the thread-necked strongyle, *Nematodirus helvetianus*, were recovered from its small intestine. Another, similarly affected calf yielded, on necropsy, an estimated 13,000 *N. helvetianus*.

The calves on the ranch were treated several times with phenothiazine, as recommended, and their regular ration of native hay and alfalfa pellets was bolstered.

Fig. 1—When this calf was killed, 6,000 Nematodirus helvetianus were found in its small intestine.

From the Wyoming State Veterinary Laboratory (Ryff); University of Wyoming (Honess); and (Pierson) formerly a practitioner at Saratoga, now at Colorado A. & M. College, Fort Collins.

Nevertheless, 27 of the 150 calves were lost during the winter following weaning, and of these deaths, the owner felt 24 were directly due to parasitism. During the following two years, a system of rotating pastures was followed, with no further trouble being experienced. The first five-month grazing season after the loss, the cattle were grazed on five areas for periods of thirty, thirty, twenty-one, forty-two, and thirty days, respectively.

Unexpected Survival of a Monkey After a Dangerous Fall

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This is a report of an apparent medical oddity—the survival of a monkey with only minor injuries after a free fall to ground level from the top of a 15-story building.

On Aug. 6, 1954, Sally, a 3-year-old female Rhesus monkey (*Macaca mulatta*), escaped from an animal room at the University of California Medical Center in San Francisco. She remained free in a wooded area surrounding the Medical Center for ten days, the object of considerable public interest. She resisted all recapture attempts.

Workmen on top of a new hospital reported Sally's presence in their midst on August 16, at which time a further attempt was made to recapture her. In what seemed like an effort to enter the unfinished building, the monkey was observed climbing over the outer ledge bordering the flat roof. At this point, her only support was her finger-tip grip on the ledge. Her body was suspended below, against the sheer, smooth outer wall of the building. Just as a net was to be slipped under her, she lost her grip and plunged 15 stories in spread-eagle fashion to the concrete courtyard below, a distance of 195 feet. The eye-witness accounts of this fall are considered reliable.

The monkey, picked up by her caretaker almost immediately after falling, was stunned and frightened but not in deep shock. She was returned to her cage, bedded on soft towels, and allowed to rest undisturbed for several hours. Subsequent physical examination revealed a transverse fracture of the first phalanx, third digit, right hand. There were, in addition, superficial lacerations on the palm and side of the right hand, on the left elbow, beneath the chin, and around the posterior callosities. Although slight bleeding occurred from the lacerations, at no time was there serious hemorrhage. Intra-orally, there was a mesiodistal fracture of the crown of the lower left second bicuspid.

Treatment consisted of local debridement and cleansing of the lacerations. The phalangeal fracture mended without casting. An electric heater was placed just outside the cage and the animal was kept in a special treatment room. At no time was it deemed necessary to administer fluids parenterally. Within two days, the monkey regained her appetite and her normal aggressive spirit.

For several days following her fall, she was unable to sit or stand without support and seemed unable fully to flex or extend the elbows and knees. During subsequent days, however, muscular control gradually returned and she is expected to regain full use of her extremities. It now seems possible to attribute this temporary loss of muscular function to spinal shock.

There were no apparent injuries or functional disturbances other than those reported. For example, there were no long bone fractures or dislocations. The urine, which might be expected to reflect the presence of a deep hematoma, internal hemorrhage, or a muscle-crushing injury, likely possibilities after such a fall, remained clear throughout the recovery period, with no hematuria or hemoglobinuria. Loss of kidney function, as indicated by oliguria or anuria, never occurred. Similarly, the feces were normal in color and consistency at all times.

As this report is written, two weeks after her fall, Sally has been returned to her regular quarters, where her progress will be followed with continued interest. The minimal nature of her injuries and consequent minimal need for treatment are a source of amazement. We have no explanation for the monkey's survival after this tremendous free fall, and so label the incident a medical oddity.

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The Importance of Sylvatic Hydatid Disease

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THE FACT THAT about 40 cases of autochthonous hydatidosis in man have been reported from the continental United States and that hogs are frequently found to be infected furnish conclusive evidence that the life cycle of *Echinococcus granulosus* is being completed in the United States. Until recently, there was but little evidence that the disease was common in man in any part of North America and there was only suggestive information as to how the life cycle of the parasite was maintained. The most puzzling fact has been the rare occurrence of infection in dogs.[1] Until 1940, only 2 dogs in the United States had been found infected—1 prior to 1891,[2] and 1 in 1922.[3] An isolated observation of dogs found to be infected in Alaska was made in 1914,[4] and no further report was made until 1951.[5] No report of infection in dogs of Canada was made until 1930, when Bruce[6] reported a single case in British Columbia.

INTERMEDIATE HOSTS

United States.—A clue as to how the life cycle of this parasite was maintained in North America was supplied by Riley[7] in 1933. He examined 13 moose from northern Minnesota and found the lungs of 6 infected with hydatid cysts. He also examined 3 timber wolves from the same region and found 2 of them infected with adult *E. granulosus.* This, for the first time, indicated the sylvatic nature of the disease in the United States. It also suggested that in the occasional case of autochthonous hydatidosis in this country the disease was due to a sylvatic cycle instead of the usual dog-sheep-dog-(man) cycle. This report by Riley was followed by his report[8] of an infected deer (*Odocoileus virginianus)* from Minnesota and by reports of Olsen and Fenstermacher[9] who found more than 36 per cent of moose *(Alces americana americana)* infected and who[10] found hydatid cysts in 2 deer (*Odocoileus virginianus borealis)* of northern Minnesota. Five of 8 moose on Isle Royal, Michigan, were found by Coburn to be infected in 1933 but the infection of these animals was not reported until 1952 by Sweatman.[11] Rosen[12] found 5 coast deer (*Odocoileus hemionus columbianus)* of California infected. Weidman[13] reported 1 fallow deer *(Dama dama)* and 2 white-tailed deer *(O. virginianus)* from the Philadelphia zoo infected with Echinococcus.

TABLE 1—Dogs of the Continental United States Reported to Have Harbored Echinococcus Granulosus*

Author	Year	Dogs examined	Dogs infected	Site
Curtice[2]	1891	?	1	Washington, D.C.
Sawitz[3] (Ransom)	1922	?	1	Georgia
Edney[29]	1940	40	2	Tennessee
Edney[30]	1949	10	1	Kentucky
Franklin and Ward[31]	1953	50	2	Mississippi
Beaver (Franklin)[32]	1954	?	2	Mississippi

*McCune[27] reported finding a rabbit in a rabbitry in Tacoma, Wash., infected with a hydatid cyst over the ribs and stated, "It is interesting to note that a guard dog of this rabbitry was wormed subsequently and delivered a massive invasion of Echinococcus granulosus." No further information is available and the bizarre nature of the findings does not permit me to accept the report as definitive. The rabbit is extremely resistant to experimental infection with E. granulosus. When experiments are successful, the cysts usually occur in the kidneys. Rabbits in nature are not infected. Cysts which have frequently been erroneously identified as hydatid cysts have been the bladder worms of either Taenia pisiformis or Multiceps serialis. Franklin and Ward stated that Crowe[28] had reported a dog infected in 1907; however, Crowe distinctly stated, "No case of infection was found in these dogs, although smears from the duodenum of 50 dogs were examined microscopically."

Alaska.—There are now reports of infected herbivores from Alaska and islands off its coast, the first by Hadwen and Palmer (1922)[14] who found the parasite common in reindeer. Little information was available until the surveys of Rausch and Schiller,[5, 15] begun in 1949 and reported in 1951, revealed the wide occurrence of sylvatic hydatid disease. They commonly found the parasite in moose and occasionally in Barren Ground caribou. Caribou (*Rangifer arcticus stonei* and *granti*) in Mount McKinley National Park were found by Murie,[16] in 1944, to be infected. On St. Lawrence Island, two species of microtine rodents, *Microtus oeconomus innuitus* and *Clethrionomys rutilus albiventer,* are commonly infected with the alveolar type of parasite. Hydatidosis in Indians and Eskimos has also been reported, by Rausch and Schiller, to be common in Alaska and St. Lawrence Island.

Canada.—Infection in wild herbivores of Canada has been known since the parasite was reported in moose by Hadwen[17] in 1932; in Manitoba, by Law and Kennedy;[18] in Ontario, by de Vos and Allin,[19] Peterson,[20] and by Sweatman. Hatter[21] found moose infected in British Columbia.

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This paper was read at the Fifth International Congress on Hydatidosis, Madrid, Spain, Sept. 25-30, 1954.

The Mayo Foundation is a part of the Graduate School of the University of Minnesota.

Sweatman also reported the infection in 1 white-tailed deer (*O. virginianus*) among 353 examined in Ontario, and Cowan[22, 23] found the following species infected in Vancouver Island and the Banff and Jasper areas of Alberta: black-tailed deer (*Odocoileus hemionus columbianus*), elk (*Cervus canadensis nelsoni*), and the mule deer (*Odocoileus hemionus hemionus*).

The infection has been reported in caribou of northern Canada by Banfield[24] and Sweatman and in 5.3 per cent of the elk of Banff National Park by Green.[25] Bison and reindeer of northern Canada are also known to be infected.

A few domestic hogs in Ontario and British Columbia have been found infected, as has an occasional horse.

In 1953, Miller[26] reported that autochthonous hydatidosis had occurred in 141 persons in British Columbia and Northwest Territories in the previous five years. Only 2 of the affected persons were members of the white race; the remaining 139 were Indians or Eskimos.

DEFINITIVE HOSTS

United States.—The occurrence of infection of wild carnivores in North America with adult *E. granulosus* is of great importance. Riley's report[7] of 2 infected wolves was the first. He later reported[8] that 5 of 12 timber wolves (*Canis lupus lycaon*) which he examined were infected. These 5 were from among 8 killed in the northeastern part of Minnesota where the infected moose were collected. There are as yet no records of examination of the southern wolf (*Canis rufus gregori*) which inhabits the lower Mississippi basin where dogs occasionally have been found to be infected and where hogs are infected relatively frequently. Here, also, a large percentage of all cases of autochthonous hydatidosis have been observed.

Dogs of the United States, although rarely found to be infected with *E. granulosus*, may be infected more frequently than is now known. Table 1 shows the records to date.

There have been numerous surveys of parasites of dogs in the United States in which *E. granulosus* was not found;* however, recent reports in regions where hogs are known to be most frequently infected and where cases of indigenous hydatid disease have been observed suggest strongly that foci of infection in dogs may be slowly developing in the United States.

Alaska.—In Alaska, the surveys of Rausch and Schiller during the past five years are significant. Previously, little was known about the incidence of the disease in this area. Joss[34] had found dogs infected in 1914, and 1 case of hydatid disease was reported[1] the same year in a California man who had lived in Alaska. The surveys of Rausch and Schiller have revealed the parasite to be common in dogs and wild canine animals in Alaska and in some of the Alaskan Islands (especially St. Lawrence Island). As many as 25 per cent of the dogs of some villages and more than 10 per cent of all Alaska wolves were infected. On St. Lawrence Island, where the alveolar type of the disease is found, the Arctic fox (*Alopex lagopus*) appears to be the natural definitive host, but the dog is also infected. Hadwen (1923)[35] reported infected dogs in Unalaklect, Alaska.

Canada.—As a result of the survey by Miller in 1952 and the report of Sweatman the same year, it is now known that the whole region of the Northwest Territories of Canada, and to some extent the more southern provinces of Canada (in particular, British Columbia), are areas in which wild carnivores and dogs are frequently infected. Because these areas are for the most part devoid of domestic herbivores, the maintenance of the life cycle is obviously dependent on sylvatic infections.

Of 114 dogs examined from British Columbia and Northwest Territories, 32 (28%) were found infected. Dogs had been previously found by Bruce and by Tennant[36] to be infected in British Columbia. Cowan[23] found wolves of Jasper, Alta., infected, as was a coyote shot near Anahim Lake, B.C.

Other Areas.—A wide variety of wild animals in various countries have been found infected with bladder worms; these reports have been considered of interest in the past but of little significance. However, these reports now become of great significance and suggest that in many countries the sylvatic nature of the disease is of great significance in the occurrence of the disease in man. Some of the wild animals in which the parasite has been found are goats, monkeys, giraffes, camels, zebras, and tapirs. Various wolves, foxes, and jackals serve as definitive hosts in many areas.

It is of interest that, whereas the majority of persons with hydatid disease have involvement of the liver, in the wild herbivores the cysts usually are in the lungs.

SYLVATIC LIFE CYCLES

This wide variety of both sylvatic intermediary and final hosts suggests various life cycles, some of which are obvious.

There is the typical wolf-moose-wolf* life cycle, with caribou and deer, in particular the reindeer, substituting for the moose on occasions. Occasionally, the coyote substitutes for the wolf. This life cycle is common in the Northwest Territories of Canada, in British Columbia and in other provinces of Canada, in certain states (for example, Minnesota), and in Alaska. In all of these areas, the wolf is a highly predatory animal. Indians of the Northwest

*A recent survey of 200 dogs in Utah where cases of indigenous hydatid disease have been reported revealed no instance of the infection.[33]

*It appears that where moose occur and wolves are absent the moose are not infected. This was shown by Lamson[37] in Maine, and by Cameron[38] in Nova Scotia.

Territories have superinterposed a variant of this life cycle by feeding the lungs of moóse to their dogs, and from their dogs they obtain the infection themselves. Man may become accidentally infected by ingesting eggs from the wolf in handling hides, or from their deposits. Reindeer of Norway and Sweden also have been found to harbor the parasite.

A second life cycle in certain states of the United States involves the fox, occasionally the dog, and perhaps the wolf on the one hand, and hogs and occasionally sheep and cattle on the other. For the most part, these states are in the lower Mississippi basin and perhaps include California and Utah. Man occasionally becomes infected accidentally by coming in contact with the excreta of wild canine animals or with an infected dog.

A third life cycle probably involves the alveolar type of disease. In nature, this disease is typically maintained by the Arctic and other foxes which eat voles, the intermediate hosts. The latter also may be eaten by dogs and wolves (?), and man may become infected from his dogs or in handling pelts. However, man undoubtedly becomes infected by habitually eating raw grasses on which eggs have been deposited. This life cycle is typical in the St. Lawrence Island and perhaps in Alaska and other countries. Barabash-Nikiforov found half of the voles (*Clethrionomys rutilus*) on Ostrov Beringa infected with the alveolar type of Echinococcus and voles in Switzerland aso have been found to be infected.

CONTROL MEASURES

Any methods for controlling the disease in man must be aimed at the dog, because control measures of diseases in wild animals have not proved practical, and the dog is still the principal source of man's infection.

The sylvatic phase of hydatid disease, like many other diseases, is important, for it furnishes a reservoir from which man may, and undoubtedly does, obtain infection. It appears to be the only explanation for the occasional appearance of hydatid disease in man in a country like the United States, where the dog is rarely infected, and for its relatively frequent occurrence in man in the far north of North America, where domestic herbivores are not present.

It is suggested that in other countries, in particular where the disease is endemic, sylvatic hydatid disease also may be important and that control measures such as those aimed at the sheep-dog-sheep life cycle may not prove altogether effective because of the presence of sylvatic echinococciasis, which probably is more prevalent than in North America. The only effective control of hydatid disease rests on an educational program aimed at teaching basic sanitation to the new generation.

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Ulcers on the tongue and oral mucous membrane may be due to feeding high levels of antibiotics.—*H. C. Smith, D.V.M., Iowa.*

Pigeon — A Newcastle Disease Carrier

Three pigeons in each of four trials were infected through different routes with a Canadian strain of Newcastle disease virus. In three days, they were moved to uncontaminated quarters to which 4 baby chicks were introduced for intimate exposure. Four of the pigeons died on the fifth to seventh days, 1 exposed *per os,* 3 intramuscularly. One developed a mild paralysis on the twelfth day while 7, including all those exposed intranasally and by contact, remained free of symptoms, all developing high concentrations of antibodies.

Four of the 16 chicks died on the second or third day but yielded no virus; 5 died on the fourth to seventh days with virus recovered from each; 1 developed a paralysis; while the other 6 showed no symptoms but developed antibodies and were immune to challenge.—*Canad. J. Comp. Med., July, 1954.*

Emergency Drought Program Extended

The U.S.D.A. on September 20 extended the Emergency Drought Feeding Program to five southeastern states, thus making it possible for farmers in 636 counties in 13 states to participate. The subsidy rate also was increased on September 17 from 60 cents to $1 per cwt. on Commodity Credit Corporation designated feeds.

The states and number of counties included in each state are: Alabama, 38; Arkansas, 67; Colorado, 27; Georgia, 70; Kansas, 30; Missouri, 81; Mississippi, 50; New Mexico, 24; Oklahoma, 73; South Carolina, 46; Tennessee, 18; Texas, 98; and Wyoming, 14.

Conditions in Kentucky, Louisiana, and Nevada are being studied.

PPLO and Atrophic Rhinitis of Pigs.—When 20 pigs, 5 to 7 days old, were exposed by nasal instillation with pleuropneumonia-like organisms (PPLO) isolated from the lung, heart, and spleen of pigs in three herds exhibiting bronchial pneumonia, peritonitis, and pericardis (identical with the disease described by Glasser), none of the baby pigs developed infectious atrophic rhinitis. *Pasteurella multocida* was added to the PPLO instilled in 11 of these pigs. —*Canad. J. Comp. Med., July, 1954.*

Immune Newcastle Disease Carriers

That fowl immunized against Newcastle disease can carry virulent strains of the virus was demonstrated when, after four passages through immunized cockerels, their feces were found infective—4 susceptible birds infected intramuscularly died in five days but only 1 of 4 infected *per os* developed the disease. Also, 4 of 13 susceptible birds in a pen with 10 immunized carriers developed the disease.—*Vet. Bull., Aug., 1954.*

Johne's Bacilli from Cows' Udders.—Microscopical and cultural examination of the udder tissue of 34 cows clinically affected with Johne's disease produced positive cultures from 2 cows. The bacilli appear to be rarely excreted in the milk, probably only in fulminating infections. This source would seem to be of little importance in the spread of the disease.—*Brit. Vet. J., June, 1954.*

Aerosols of Pancreatic Dornase for Bronchopulmonary Disease

Fibrinolytic enzymes have proved of therapeutic value in such conditions as chronic ulcers, infected surface wounds, and burns. Mucopurulent secretions in the tracheobronchial passages cause obstructions and provide culture mediums for infected microörganisms. When 35 human patients inhaled aerosols of pancreatic dornase, 50,000 to 100,000 units one to three times daily for one to six days, the effects varied from good to excellent. No side reactions were observed.—*Ann. Allergy, Jan., 1954.*

Old Birds Don't Just Fade Away.—Under the above title, *New Jersey Agriculture* (Sept. 1953), reports that poultry physiologists at Rutgers University are measuring the blood pressure of chickens in an effort to determine why about half of the autopsies in older birds reveal neither infectious nor constitutional diseases. The blood pressure rise with age is comparable to that of man, except that roosters have a much higher pressure than hens.

To check a bull for urethral calculi, stimulate urination by bathing the prepuce with hot water.—*R. D. Hoffman, V.M.D., Pennsylvania.*

Encephalitis in Equine Strangles.—Four horses in Japan, affected with strangles and which had shown nervous symptoms, were found on necropsy to have apparent metastases, causing a purulent meningoencephalitis in 3 and a brain abscess in the fourth. In 1, the infection had come directly from an abscess involving the frontal bone.—*Vet. Bull., July, 1954.*

The Myxomatosis Trial in France

The "Defense Association Against Myxomatosis" in France, in July, brought suit for 1 franc against an 80-year-old member of the Academy of Medicine who attempted in May, 1952, to rid his estate of wild rabbits by inoculating a pair with myxomatosis virus purchased from a laboratory in Switzerland "for experimental purposes." The disease soon spread across Europe and to Britain, at first being fatal to 99 per cent of the rabbits but now to only 50 per cent.

In the meantime, it has cost France millions of francs in hunting licenses, closed ammunition plants, wrecked the domestic rabbit industry, deprived consumers of many million pounds of inexpensive meat and furriers of business in felt hats and "ermine coats," amounting to billions of francs. Ironically, resistant wild rabbits have again appeared on the doctor's estate. —*The Washington Star, July 8, 1954.*

At one time cholera was the only swine disease recognized, then came swine plague which covered all pneumonia conditions. Probably that's all it ever was.—*J. D. Ray, D.V.M., Illinois.*

Rats transmitted *Brucella abortus* organisms in their urine for thirty-six hours after being fed uterine cotyledons from infected cows.—*Vet. Bull., Jan., 1954.*

Anthrax is reported to have killed many hippopotami in a game park in Uganda, South Africa.—*Associated Press, May 12, 1954.*

The milk production of average dairy cows has increased 61 per cent since 1910, 20 per cent since 1930, and 16 per cent since 1940.—*Hoard's Dairyman, Aug. 1954.*

NUTRITION

Urogenital Abnormalities in Stilbestrol-Treated Lambs

When approximately half of 517 feeder lambs were treated with 15-mg. pellets of diethylstilbestrol, subcutaneously, they gained significantly faster but their carcass grades and dressing percentages were slightly lower than the untreated lambs. Half of the treated lambs were given a second pellet on the seventieth day. About 200 were slaughtered on day 112, the others on day 165.

The number of ewe lambs was too small for significant observations but treated wethers developed preputial swelling with distress during urination, and many showed visible swellings in the perineal region. Twelve, all of which had received two implants, died from prolapse of the rectum and urinary calculi symptoms. The rectal prolapses were assumed to be the result of straining during difficult micturition. When the urogenital organs of approximately 70 wethers in each group were compared, the dimensions of the accessory organs of those receiving 1 pellet were nearly double that of the controls.

Similar heavy losses were reported from two commercial feedlots where over 11,000 lambs were given stilbestrol implants.—*J. Anim. Sci., May, 1954.*

Intravenous Carotene Evaluated

The intravenous injection of an aqueous carotene preparation into 8 wethers resulted in a highly significant increase in the vitamin A in the blood plasma—it was approximately doubled from the third to the twelfth hour after injection. However, effect on liver storage of carotene and vitamin A was questionable.

A similar injection into 7, 4-month-old calves caused no significant difference in the plasma vitamin A, and resulted in no liver storage of vitamin A or carotene. These results indicate a wide difference in the ability of cattle and sheep to convert intravenous carotene to vitamin A. Furthermore, vitamin A deficiency symptoms in the calves were not relieved, whereas others had found that intravenous or intramuscular injection of carotene has produced a remission of vitamin A deficiency symptoms in pigs.—*J. Anim. Sci., Aug., 1954.*

Mineral Deficiency and Parasitism

When baby chicks, fed various deficiency rations, were given *per os* about 200 *Ascaridia galli* ova when 2 to 4 weeks old and slaughtered three weeks later, the parasites were significantly fewer and shorter in the phosphorus- and calcium-deficient groups than in the control group. This was attributed to inadequate calcium and phosphorus for the worms' requirements. There was no constant trend in the manganese-deficient group. Typical deficiency symptoms developed in the deprived groups of chickens. —*Vet. Bull., Aug., 1954.*

[This would seem to substantiate the breeder's belief that feeding milk to pigs increased "worminess;" also to account for the rugged ascarids often found in good pigs on alfalfa pasture.—ED.]

To avoid sick and unthrifty calves, be sure that they nurse their dams at least once or that they receive colostrum or vitamin A as a substitute. Better yet, raise the calves on nurse cows. Using milk substitutes without feeding some milk appears to be an important cause of dietary trouble in baby calves. Some milk should be fed for at least six weeks and preferably for two or three months.—*M. G. Fincher, D.V.M., in Guernsey Breeders' J., Sept., 1954.*

The belief that hybrid corn contains less protein than did the open-pollinated varieties is denied by the U.S.D.A. The lower maximum temperature of recent years, they believe, has caused the decrease in protein. —*Progressive Farmer, August, 1954.*

Crushers Increase Hay Quality.—The hay crusher, a relatively new machine for processing hay, crushes the stems as they are cut, which allows them to dry as rapidly as the leaves. This reduces the drying time by 25 to 50 per cent, resulting in less leaf loss.—*Agric. Leaders' Digest, Sept., 1954.*

EDITORIAL

Progress Toward Improved Status for Federal Veterinarians

An analysis of records pertaining to the classification of veterinarians now employed by the Agricultural Research Service, U.S.D.A., has been completed and is presented in summary form in table 1.

TABLE 1—Veterinarians in Agricultural Research Service as of June 30, 1954 (by Branch and Grade)

Branch	GS Grade										
	7	9	11	12	13	14	15	16	17	00	Total
Animal Inspection and Quarantine	1	33	17	11	6	1	1	—	—	—	70
Animal Disease and Parasite Research	1	1	18	21	12	4	1	—	—	2	60
Animal Disease Eradication	21	370	74	58	23	3	2	—	—	2	553
Meat Inspection	27	447	120	44	12	8	1	—	—	—	689
Miscellaneous	—	—	1	—	—	—	—	1	1	—	3
Total	50	881	230	134	53	16	5	1	1	4	1,375

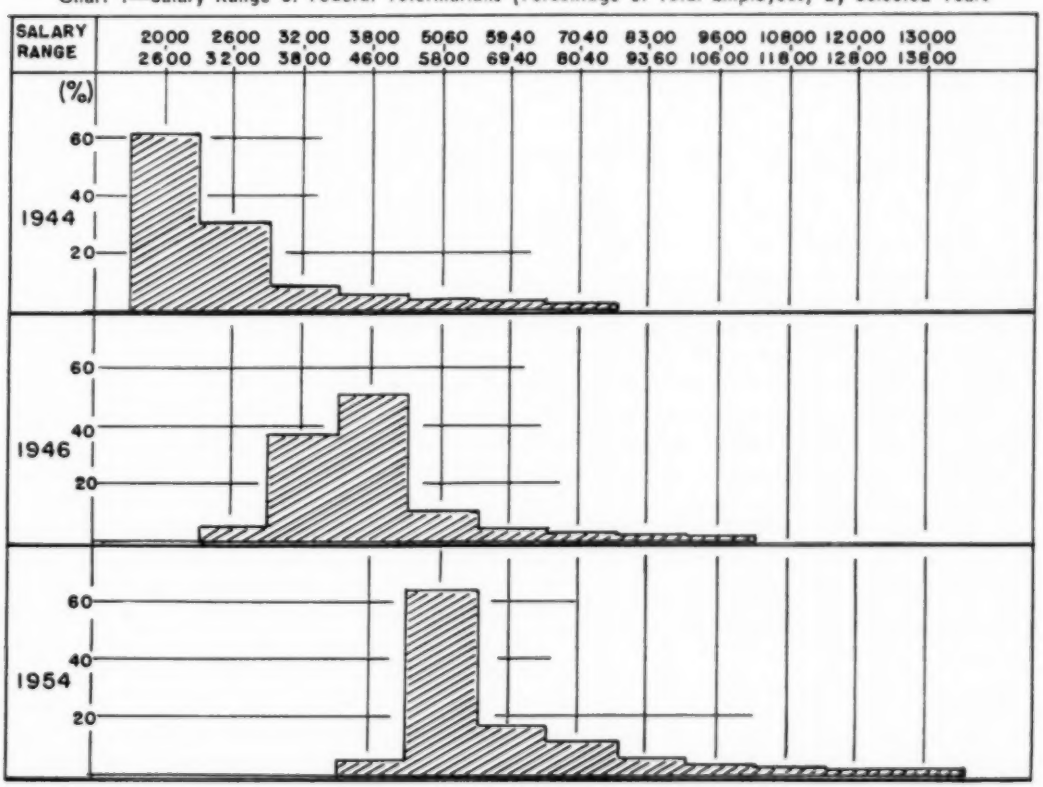
This report is presented to direct attention to several pertinent issues as well as for the value it may possibly have from an informational viewpoint.

1) Those engaged in federal service are no longer the "step-children" of the veterinary profession. Improving the salary and grade classification of this group has been a stated objective of the AVMA, particularly since 1941. The progress made during the ten-year period (1944-1954) is evidence of the value of coordinated effort.

In 1944, 61.5 per cent of the veterinarians employed by the Bureau of Animal Industry received less than $3,200 per annum.

In 1954, 96.4 per cent employed by ARS

Chart 1—Salary Range of Federal Veterinarians (Percentage of Total Employees) by Selected Years



(formerly BAI) receive more than $5,000 per annum.

In 1944, less than ten veterinarians in the U.S.D.A. received salaries in excess of $7,000 per year. In 1954, 212 veterinarians in ARS are in grades ranging from GS-12 to GS-17 ($7,040 — $13,000).

2) Improvements in grade and salary classifications have been the result of organized effort on the part of many people. The AVMA, in initiating this program, demonstrated that aggressive leadership is not lacking in our profession and, further, that a task started will be carried through to a conclusion.

3) The total number of veterinarians in the BAI in 1940 was 2,647; in 1951, 1,502; and in 1954 (ARS), 1,375.

The functions for which the U.S.D.A. is responsible to the livestock owners and the public can not be adequately performed with this limited number of professional people. It would appear that the status of those who chose to remain in the federal service has been vastly improved; yet something additional must be done to provide more manpower in this field.

4) To some extent, employees of the BAI and ARS have been reluctant, as a group, to actively support the program doing the most to advance the standings and the prestige of their work—that is, by membership in their national professional association. This is not true "across the board" since 90 per cent of the veterinarians in the Animal Disease and Parasite Branch (ARS) are AVMA members. However, only 60 per cent in Animal Inspection and Quarantine, 61 per cent in Animal Disease Eradication, and 34 per cent in Meat Inspection belong to the AVMA.

Programs designed to further elevate the standings of veterinarians employed by the federal government will be actively supported. As recently as Aug. 26, 1954, the Association was informed by the Secretary of Agriculture that the requests for full implementation of revised Civil Service Job Standards was being given careful attention in connection with proposed budget estimates.

There will be no slackening of effort by the AVMA to advance the science and art of veterinary medicine in all its branches. The full support of those who have recently benefited as a result of AVMA efforts would permit an expanded and more comprehensive program for the future. —*H. E. K.*

Cooperation in Veterinary Education

In the profession's pioneering days, when veterinary medicine was figuratively in rompers, those who were successful were usually rugged men, at least in spirit, each largely developing his own methods of procedure. Even those who taught in veterinary schools were apt to seem overzealous in battling contemporaries while supporting a theory or a technique.

Today, the picture has definitely changed —not that ruggedness has ceased to be a requisite for many phases of veterinary endeavor—but methods of procedure are now much better established and science has provided more efficient ways than debate and ridicule to prove or disprove the value of a theory or a technique.

There are many signs of greater professional maturity but perhaps none more convincing than the profession-wide shift from utter independence to cooperation. And nowhere is this better illustrated than in the field of education, the most obvious example being the development of regional education.

The Southern Regional Compact with five veterinary schools in the 13 states has been in successful operation since 1948; the Western Regional plan, at present including only one (Colorado) of the three veterinary schools, has been in operation about a year; and an act of Congress has recently made possible a third such plan for the New England States.

However, perhaps even more convincing evidence of maturity in the field of veterinary education is provided by the little noticed but quite significant spontaneous development of associations within teaching specialty groups. In marked contrast to the one-time tendency to conceal their pet teaching methods and equipment, some of these groups are now regularly and enthusiastically comparing and sharing their most novel and advanced findings. True, these associations were stimulated by the sudden postwar demand for teachers when, with seven new schools, the veterinary enrollment practically doubled but they, nevertheless, were definitely voluntary and altruistic.

Credit for inaugurating these specialty conferences must, we believe, go to the group of physiology teachers. In the summer of 1948 they assembled at Cornell University for a course offered by Dr. H. H. Dukes. This was repeated as a two-week short course in 1950 with 20 men, representing 15 of the 19 schools, in attendance. It has now become an annual event with the host responsibility rotating among the schools, preferably at a time and place adjacent to the annual AVMA convention. This year the emphasis was on pharmacology in a four-day conference at Washington State College (*see* p. 365) just prior to the Seattle convention, and next year this conference will be held at the University of Minnesota.

At least one other group, the bacteriologists, is holding similar independent conferences, their third having been held at Colorado A. & M. on August 18 (*see* p. 364); and still others have meetings at the annual AVMA conventions. The benefits from such cooperation to the teachers, their students, and the profession is too obvious to require further comment.

Canine Distemper and SRH

Sept. 15, 1954

TO THE EDITOR:

This letter is to protest against the publication by the JOURNAL [Aug., 1954: 111] of the article entitled "Treatment of Canine Distemper with SRH Intravenously." Various press (agent) releases since this article appeared in print indicate that laymen are meant to believe that a cure for distemper has been discovered. Perhaps this is so, but the article itself does not warrant such a conclusion.

The virus of Carré belongs to that group of smaller ultra-microscopic organisms unaffected by the antibiotics and shared by such important diseases of man as influenza. When, and if, a cure for distemper is found a monumental discovery will have been made. Properly, the announcement of such a discovery should be presented in a scientific manner to scientific men. The presentation should include controlled data, complete case reports of many cases, adequate proof of diagnosis by including complete descriptions of symptoms, course, supportive laboratory procedures, postmortem findings on diseased animals, and quite properly with concurring opinions of medical persons of established scientific standing.

Doctor Pleuger's material as published in the August JOURNAL is so glaringly and ridiculously incomplete that its weaknesses do not need to be itemized here. In addition, a good part of the article is irrelevant to the title and the summary is not really a summary, but contains conclusions unwarranted on the basis of the substance of the report. It can be conceded that articles submitted for publication must consist partly of matter of fact and partly of opinion. Dr. Pleuger's material consists too little of matter of fact and too much of opinion on this extremely important topic. Its publication in the JOURNAL represents astoundingly bad editorial judgment and it is my belief that appropriate investigative action should be taken by the executives of the AVMA. Such investigation should include further examination of all the case reports of the "more than 200" cases mentioned, all records in reference to them, and a report of these findings should be presented to the veterinarians in a future issue of the JOURNAL.

Very truly yours,

s/Gerry B. Schnelle, V.M.D.
Chief of Staff.

[Angell Memorial Animal Hospital, Boston, Mass.]

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The JOURNAL welcomes Dr. Schnelle's forthright letter and is in full agreement with all but his last two statements. While articles are not published deliberately to stimulate controversy, yet the JOURNAL does cherish the opportunity of being a vehicle for new and even unconventional ideas and methods provided they are properly documented, for therein lies the road to progress. However, Voltaire's expression "I disapprove of what you say, but. . . defend. . . your right to say it" was not the motive in this case. The sad fact is that no motive was involved.

It was not by "bad editorial judgment" but by an omission of judgment that this manuscript found its way into the JOURNAL. That the *faux pas* involved such an important and sensitive subject was particularly unfortunate. Therefore, no "appropriate investigative action" is contemplated. We can only hope that the merits of the product may soon be indicated by reports from those who may use it. We invite such reports.—W. A. AITKEN.

The increasing popularity of polled beef cattle is demonstrated by their registrations in the Hereford breed. The first 11 head were registered by an Iowa breeder in 1901 but in 1933 they provided 5 per cent of the breed registrations; in 1943, 7 per cent; and in 1953, 16 per cent.—*West. Livestock J., Sept., 1954.*

CURRENT LITERATURE

ABSTRACTS

Assay of Antibiotics with Methylene Blue Milk

The antibiotics, aureomycin and terramycin, are assayed by the utilization of methylene blue milk. The medium consists of 10 Gm. of dried, nonfat milk solids/100 ml. of distilled water. Methylene blue thiocyanate is added in double concentration. The sample to be assayed is added in decreasing quantities of 0.1 cc. per tube. Incubation is carried out in a water bath at 37 C. for four hours, the designated end-point in that tube showing no evidence of methylene blue reduction. Antibiotic levels in bovine blood serum, milk, and urine have been determined by this method. The assay of penicillin and streptomycin have not been satisfactory by this method. The method described provides a simple, rapid easily read means of assay.—[*I. A. Schipper and W. E. Petersen: Assay of Antibiotics by Use of Methylene Blue Milk. Am. J. Vet. Res., 15, (July, 1954): 475-476.*]

Isolation of Pleuropneumonia-like Organisms

This is a preliminary report of efficiency of various mediums for isolation of pleuropneumonia-like organisms (PPLO) from exudates of birds with chronic respiratory disease. A comparative study was made of several standard mediums for the isolation of PPLO organisms from chicken and turkey exudates. One medium which was composed of a 10 per cent blood-agar slope overlaid with a 20 per cent horse serum PPLO broth appeared to be the most satisfactory for the isolation of PPLO.—[*H. E. Adler, R. Yamamoto, and R. A. Bankowski: A Preliminary Report of Efficiency of Various Mediums for Isolation of Pleuropneumonia-like Organisms from Exudates of Birds with Chronic Respiratory Disease. Am. J. Vet. Res., 15, (July, 1954): 463-465.*]

Phenothiazine and Horse Strongyles

Phenothiazine and 23 related compounds were tested against horse strongyle larvae and eggs in feces. Phenothiazine itself killed or prevented the development of larvae in feces at a concentration of 0.025 M. (molar) (0.5%). Only one of 11 derivatives, the tetrapotassium salt of 1, 3, 7, 9-phenothiazinetetrasulfonic acid, 5,5-dioxide, was effective at 0.1 M., the highest concentration tested. Of the analogs tested, phenoxathiin and chlorophenoxathiin were active at 0.025 M., pyocyanin dihydrochloride at 0.005 M., phenazine and phenoxazine at 0.01 M., and xanthydrol at 0.05 M. Phenoxathiin-10,10-dioxide, xanthone, and 2-aminophenazine were not effective at 0.1 M. Two related aliphatic compounds, hexyl-*iso*-octyl amine and di-*n*-hexyl amine, were toxic at a concentration of 0.01 M. Modifications of the phenothiazine molecule had varying effects on the toxicity of the compounds produced. Substitution on the nitrogen atom of phenothiazine decreased or destroyed its toxicity. Replacement of the nitrogen atom by oxygen or of the sulfur by nitrogen did not decrease its toxicity. Replacement of one of the heterocyclic atoms of phenothiazine by a carbonyl group and the other by an oxygen atom or a methylene group destroyed or greatly reduced toxicity. In the former compound, reduction of the carbonyl to the corresponding secondary alcohol partially restored toxicity.—[*Norman D. Levine and Virginia Ivens: The Effects of Some Phenothiazine Derivatives and Analogs on the Free-Living Stages of Horse Strongyles, Am. J. Vet. Res., 15, (July, 1954): 349-351.*]

D-Alanine Utilization by Brucella

Data from respiration studies on the three species of Brucella (*abortus, melitensis, suis*) indicate that one of the mechanisms involved in the differential bacteriostatic action of basic fuchsin and thionin is the effect on D-alanine utilization. Basic fuchsin and thionin appeared to inhibit different enzyme systems.—[*H. S. Cameron and Margaret F. Meyer: The Differential Effect of Basic Fuchsin and Thionin on D-Alanine Utilization by the Genus Brucella. Am. J. Vet. Res., 15, (July, 1954): 472-474.*]

Response of the Green Turtle to Several Virus Strains

Seventy-two young green turtles (*Pseudemys elegans*) were placed into 18 groups of 4 turtles each. Mouse brain suspensions of Bunyamwera, Bwamba, Zika, Ntaya, Wyeomyia, Uganda "S," Ilhéus, Anopheles "A," Anopheles "B," West Nile, Semliki Forest, and rabies viruses, and allantoic fluid suspensions of the six strains of Newcastle disease viruses were injected intracerebrally into each group of turtles. At the end of twenty-one days, these turtles appeared normal. The brains of the turtles were removed from each group and suspensions from all but the Newcastle disease groups were inoculated intracerebrally into mice. At the end of fourteen days, all the mice appeared normal. Suspensions of each of the six Newcastle disease groups were injected into 10-day-old embryonating eggs and after seven days all of the embryonating eggs were normal. These results indicate that young green turtles are not susceptible to any of these neurotropic viruses. —[*Reginald L. Reagan, Eduard C. Delaba, Mildred T. Stewart, and A. L. Brueckner: Response*

of the Green Turtle (Pseudemys Elegans) to Several Virus Strains After Intracerebral Inoculation. Am. J. Vet. Res., 15, (July, 1954): 481-483.]

Experimental Infection of Calves with Strongyloides Papillosus

When grade Jersey calves were infected with filariform larvae of the threadworm, *Strongyloides papillosus*, eggs appeared in the feces in nine to 11 days after exposure. When calves were infected by mouth, the number of eggs subsequently eliminated with the droppings were negligible compared to those eliminated by calves infected percutaneously. Re-exposure of calves to the larvae, percutaneously, produced a rather severe, localized inflammation in both old and new exposure sites. An acquired immunity was evinced by calves upon re-exposure to larvae. The most frequently observed results of infection were intermittent diarrhea, sometimes mucoid and bloody; loss of appetite; loss of condition; and retarded growth. Those calves severely infected made daily weight gains from 35 to 79 per cent less than those of comparable controls. Seven of the 16 calves exposed to large numbers of larvae died as a result of the infection. Calves infected when 4 to 5 months old lived longer than those infected at an earlier age, usually less than a month old. Very young calves died after a single exposure to 200,000 larvae while the least exposure associated with death of older calves was 1,000,000 larvae. The worms produced a catarrhal inflammation with petechial and ecchymotic hemorrhages, especially in the duodenum and jejunum.—[*Halsey H. Vegors: Experimental Infection of Calves with Strongyloides Papillosus (Nematoda). Am. J. Vet. Res., 15, (July, 1954): 429-433.*]

Marginal Punched Cards in Veterinary Research

Simplified, hand-notched and -sorted, marginal punched cards are described for such uses as reprint filing, compilation of bibliographies, filing of projection and microscope slides, maintenance of autopsy and laboratory records, organization of lecture notes and data for publication, and taxonomic keying of organisms. The hand-sorting operation described is rapid, inexpensive, and well-suited for individual and small laboratory use.—[*C. W. Schwabe and L. R. Davis: Marginal Punched Cards in Veterinary Research. Am. J. Vet. Res., 15, (Oct., 1954): 634-638.*]

Serum of Normal Dairy Cattle

The serum of 126 normal dairy cows were analyzed for sodium, chloride, calcium, phosphorus, CO_2 content, and pH. The animals were divided into three age groups: (1) 2 to 13 years; (2) 4 to 10 months; (3) 4 days to 10 weeks. Blood samples were collected by inserting a needle into the jugular vein and allowing the blood to flow through a piece of gum rubber tubing into test tubes containing mineral oil. The results were statistically analyzed and showed that there was a significant difference in phosphorus levels between group 1 and group 3, the younger animals having a higher serum phosphorus.—[*B. J. McSherry and I. Grinyer: Levels for Sodium Chloride, Calcium, Phosphorus, CO_2 Content, and pH Values in the Serums of Normal Dairy Cattle. Am. J. Vet. Res., 15, (Oct., 1954): 535-541.*]

Rumenitis and Its Relation to the Ration

Two experiments were conducted to determine the effects on the rumen of the rate of change of ration and the ratio of concentrate to roughage in the ration.

Animals which transferred from a ration of roughage to a ration for fattening in twelve days developed significantly more rumenitis than animals which made the same transfer in thirty days. The sample of animals slaughtered after thirty-five days on fattening feed showed extensive acute rumenitis. Animals slaughtered after 133 days of fattening showed chronic rumenitis.

Cattle fattened on a ration in which the proportion of concentrate to roughage was 3:1 developed significantly more rumenitis than animals fattened on the same ingredients but in which the proportion of concentrate to roughage was 2:1 or lower.—[*Rue Jensen, W. E. Connell, and A. W. Deem: Rumenitis and Its Relation to Rate of Change of Ration and the Proportion of Concentrate in the Ration of Cattle. Am. J. Vet. Res., 15, (July, 1954):425-528.*]

Serum Calcium in Egyptian Buffaloes and Cattle

The determination of total serum calcium was carried out on Egyptian buffaloes and native and cross breed cattle under different physiological conditions. Normal buffaloes had a calcium level of 10 mg./100 ml. of serum; Egyptian cattle about 9.2 mg./100 ml. of serum; and the cross breeds about 8.5 mg./100 ml. of serum. Males had higher levels than females and pregnant cows higher levels than nonpregnant cows. When the Ca level was estimated during the period of gestation, it started close to the normal level and increased gradually until it reached its maximum in very late pregnancy, then it fell below the normal level after parturition, and gradually started to rise again.—[*Hussien Reda and Hassan Salem: The Study of Serum Calcium in the Egyptian Buffaloes, Native and Cross Breed Cattle. Am. J. Vet. Res., 15, (Oct., 1954): 561-563.*]

Anomalies and General Pathology of Teeth of the Ox

A total of 7,480 cattle were studied at time of slaughter to determine the nature and occurrence of dental abnormalities. Diagnoses of anomalies and irregularities were made and a tabulation is

set forth. Dental caries, enamel flecks, disturbed calcification, and hypoplasia, as found in cattle, are discussed.—[*Norman L. Garlick: The Teeth of the Ox in Clinical Diagnosis. III. Developmental Anomalies and General Pathology. Am. J. Vet. Res., 15, (Oct., 1954): 500-508.*]

FOREIGN ABSTRACTS

Meningitis in the Pig Due to Trichosporon Cutaneum

From the central nervous system of a young pig with meningitis, a yeast, *Trichosporon cutaneum*, was isolated. Histological preparation from the central nervous system revealed yeast cells and a genuine pseudomycelium in the midst of an inflammatory infiltration. When inoculated intraperitoneally with this organism, mice developed small necrotic areas of the liver in which yeast cells and mycelium were formed.—[*J. D. Verlinde and R. A. de Haas: Meningitis in the Pig Apparently Due to Trichosporon Cutaneum. Tijdschr. voor Diergeneesk., 79, (1954): 106-110.*]—L.V.E.

Hormonal Influence on Canine Prurigo and Eczema

The author has treated many dogs for prurigo and eczema which apparently has some connection with their sex hormones as it usually occurred either some weeks after estrus or in cases of pseudolactation. He has had extremely satisfactory results from hysterectomy and ovariotomy; the relief being a permanent.—[*J. D. Beyers: Hysterectomy and Ovariotomy in Dogs with Prurigo and Eczema by Hormonal Influence. Tijdschr. voor Diergeneesk., 79, (1954): 303-304.*]—L.V.E.

Transmission of Foot-and-Mouth Disease

Evidence of the survival of the foot-and-mouth disease virus in fodders was reported by Burbury in 1927 and 1928.

On four occasions, active virus was recovered from plants which were suspected to have introduced foot-and-mouth disease into Switzerland from 1947 to 1951.

Eleven primary outbreaks were reported in Switzerland from 1947 to 1953 in which all the requirements to prove the transmission of foot-and-mouth virus by plants were met. The eleven outbreaks originated several subsequent outbreaks which in the most severe instance totaled up to 92 cases in a single canton. Plants, therefore, should be considered a potential danger in international dissemination of foot-and-mouth disease.—[*G. A. Moosebrugger: Transmission of Foot-and-Mouth Disease by Forage and Vegetable Products. Bull. Off. Internat. Epizoot, 22, (1954): 236-347.*]—J.P.S.

Wild Animals and Transmission of Infectious Diseases

Wild animals and birds may act as reservoirs, vectors, or carriers of bacterial or viral infections of domesticated animals and man.

In all countries, animal refuges and parks may be reservoirs of infection since they are not under the control of the national veterinary regulatory officials and so diseases in these refuges may not be controlled as they are in domestic animals of the adjacent areas.

The comparative lack of knowledge on the subject of diseases of wildlife is referred to and attention is drawn to resolutions from international conferences calling for research projects to be instituted.—[*W. B. Beaton: The Role of Wild Animals in the Transmission of Infectious Diseases Other Than Rabies. Bull. Off. internat. Epizoot., 22, (1954): 223-235.*]—J.P.S.

Bovine Tuberculosis in Yugoslavia

This is an excellent article on the problems of animal (bovine) problems in Yugoslavia. The author states that the four greatest challenges to veterinarians in his country are tuberculosis, brucellosis, mastitis, and diseases of the newborn (in that order). The "stamping out" method of tuberculosis eradication is not possible economically in that country as the incidence is too great. He points out that it took twenty-five years to reduce the 5 per cent incidence of reactors to 0.2 per cent in the United States and that the United States and Denmark have made the greatest progress in eradication.

Where the incidence is so great in Yugoslavia, the fight against tuberculosis should be in stages and gauged to the percentage of infected animals, according to the writer. In herds where the incidence is less than 10 per cent, which is the case in small herds, test and slaughter is recommended. However, the incidence is 30 per cent or higher in the larger herds and, according to the author, it takes three or more generations to eliminate the disease in such herds.

In conclusion, it is stated that it has been shown by the experience of countries where tuberculosis has been successfully controlled and where attempts have failed that the problem of control can not be entirely entrusted to the veterinary practitioner-governmental participation, and supervision is essential to successful eradication.—[*S. Sredovitch: Les Aspects Hygieniques et Organisateurs dans la Lutte Contre la Tuberculose Bovine Rev. Méd. Vét. (June, 1954): 342-351.*]—R.F.V.

Use of Tyrothricin in Surgery

One hundred and one observations of external infections treated with tyrothricin are reported. The antibiotic was used in a solution of 0.1 to 0.5 per cent concentration and was tolerated excellently. Studies of tissue cultures revealed that this

concentration of the substance is inoffensive to living cells and stimulates the process of cicatrization on injured tissues. There were no signs of toxicity or allergic reactions in this series and this antibiotic is highly recommended by the author in the treatment of infected wounds, pyodermatitis, ulcers, and chronic wounds.—[*H. Fargel: La Tyrothricine Antibiotique pour usage Externe; Son Emploi en Chirurgie. Abstr. in Q. S., 5, (1954): 281.*]—R.F.V.

Hexachlorophene and Hydrocortisone for Dermatoses

Hexachlorophene, effective against staphylococcic and other gram-positive organisms, is nontoxic and nonirritating to the skin. It was employed in a 1 per cent ointment and 0.5 per cent emulsion in the treatment of canine and feline eczemas with excellent results. The second agent was used as a 2.5 per cent ointment of hydrocortisone acetate and was found to be effective against eczemas in both species and useful in the treatment of ear diseases such as catarrh. It is reported that the secretions dry up after the first application and the lesions heal after eight days of treatment.—[*R. Laborie: A Propos du Traitement de l'eczéma du Chien et du Chat par deux Nouveaux Médicaments; l'Hexachlorophène et l'Acétate d'Hydrocortisone. Rev. Méd. Vét. (June, 1954):*352-354.] R.F.V.

Negri Bodies and Early Diagnosis of Rabies

In many cases of suspected rabies, no conclusive symptoms develop during the holding period. In many of these cases, no Negri bodies can be found. Inoculation of 10 per cent brain tissue intracerebrally into young white rats causes the development of Negri bodies in 80 per cent of cases in five days and in 100 per cent of all inoculated rats after death.—[*D. Ercegovac and R. Turubatovic: Diagnosis of Rabies Based on the Early Development of Negri Bodies. Bull. Off. internat. Epizoot., 22, (1954): 115-121.*]—J.P.S.

Xylocaine Hydrochloride in Veterinary Medicine

Veterinarians in practice who are using this new local anesthetic find anesthesia to be prompt and more prolonged than that of many other agents being used.

This anesthetic, used in both small and large animals, has been found to have a more rapid and prolonged action than an equal concentration of procaine hydrochloride. Xylocaine is potent, very stable, with a wide margin of safety, and has been recommended for topical and parenteral anesthesia. It is available in 0.5 and 2.0 per cent solutions, with and without epinephrine, 1:100,000.—[*Xylocaine Hydrochloride in Veterinary Medicine. Medicinaria, Univ. of Caldas, 1, (May, 1954): 74.*]—G.T.E.

Milk, the Indispensable Human Nutrient

The author reviews the chemical composition of milk, including the fats, proteins, vitamins, gases, and amino acids. The milk of woman contains amino acids, including tryptophane, of particular importance for the growth of children. The iron, copper, and manganese content of the milk of woman, cow, and goat are compared. The iron and copper content is higher in human milk; the manganese content is higher in goat milk. One section of the paper is concerned with the factors that influence the chemical composition of milk. Among these are breed, ration, age, period of lactation, and exercise.—[*E. B. Garcia: Milk, the Indispensable Human Nutrient. Medicinaria, Univ. of Caldas, 1, (May, 1954): 44-57.*]—G.T.E.

Periodic Inflammation of the Eyes of Horses

By the serological test, positive Leptospira titers have been obtained in horses with and without pathological changes of the eyes. The percentage of positive reactions of horses with healthy eyes has been lower (12.35%) than that of horses with inflammatory changes (68%).

The serums of 3 horses suffering from periodic inflammation of the eyes reacted, during the first two to eight days of the disease, twice negatively; later on, positively. In one case of periodic inflammation, the reaction remained constantly negative. Experimental inoculation of healthy horses with cultures of *Leptospira grippotyphosa, Leptospira pomona, and Leptospira canicola* did not produce any eye changes resembling periodic ophthalmia. Six to fourteen days after the experimental inoculation, a positive specific titer has been found.—[*H. Schebitz: The Etiology of the Periodic Inflammation of the Eyes. Berl. und Munch. Tierärztl. Wchnschr., 2, (1954): 31.*]—F.K.

BOOKS AND REPORTS

Artificial Insemination of Cattle

Artificial insemination of cattle has developed in recent years as a special field of veterinary medicine. This book intelligently presents information about the present situation and practical use of this method of breeding cattle. The first chapters are concerned with the history, practical use, and the organizational requirements. Further chapters discuss the selection and admissability of bulls with regard to their breeding ability, semen quality, and various hereditary factors.

Special chapters have been devoted to the various methods of semen collection and how to test the obtained semen macroscopically, microscopically, chemically, bacteriologically, and serologically. Subsequent chapters discuss the dilution, preservation and handling of the semen until it is used. Equipment needed and the technique of artificial insemination have been described. A special part of the book has been devoted to the

detailed judgment and evaluation of female animals used in artificial insemination. It is clearly written and the illustrations are good. It may serve as a help to the interested practitioner.—[*Artificial Insemination of Cattle (Die Besamung beim Rind). By D. Kust and F. Schaetz. 149 pages. 47 illustrations. Ferdinand Enke, Stuttgart, Germany. 1954. Price not given.*]—F.K.

Comparative Anatomy of Domestic Animals

The first volume of this textbook is concerned with the osteology and myology of horses, cattle, swine, and dogs. With regard to the size (173 pages) the description is superficial and can not compare with the classical descriptions in standard anatomy texts. In particular, the important chapters pertaining to the static and dynamic anatomic relationships has been discussed in a limited manner and is hardly sufficient for students. The all-important illustration factor has not reached the high level of illustrations in other known standard anatomy texts.

This textbook could, however, be used as a short review for students.—[*Textbook of Comparative Anatomy of the Domestic Animals (Lehrbuch der Vergleichenden Anatomie der Haustiere). By J. Dobberstein and T. Koch. 173 pages. 186 illustrations. S. Hirzel Verlag, Leipzig, Germany. 1953. Price not given.*]—F.K.

Strains of Pasteurella Pseudotuberculosis

There can be no doubt that infection with *Pasteurella pseudotuberculosis* in animals is far more frequent than has hitherto been assumed. Thus, during a period of three years, 15 per cent of 533 hares sent to the State Veterinary Medical Institute (Stockholm, Sweden) for bacteriological and pathological examination proved to be infected with pseudotuberculosis. Taking advantage of the material available in this institute, a thorough study of 186 authentic strains of *P. pseudotuberculosis* isolated from various sources was made which yielded the following results:

1) Guinea pigs were found to be uniformly susceptible to infection with virulent strains, while white mice and rabbits were often resistant. White rats, though refractory to the infection, succumbed to the toxin of certain strains, showing necrotic lesions in their livers.

2) The strains could be divided into two groups: those producing a toxin in 48-hour broth cultures (toxic) and those failing to do so even within six months (atoxic). The toxin was found to be thermolabile and could be transmuted into a toxoid with formalin. Administration first of the toxoid and then of the toxin in gradually increased doses rendered rabbits immune to at least 40 lethal doses of the toxic filtrates. The serum of these rabbits protected mice against multiple lethal doses of the toxic filtrates. Differing, thus, from the endotoxin of gram-negative bacteria, the toxin of these strains has the properties of an exotoxin as defined by Topley and Wilson.

3) A study of the antigenic structure showed that, according to their 0 antigens, all the 186 strains could be classified into 5 groups between which no cross serological reactions took place.

4) Ten out of 31 old stock strains of the collection proved avirulent, but only one of these ten strains, as well as one freshly isolated strain (32/IV), were reliably immunogenic. It is significant that, in contrast to the other avirulent strains, the two immunogenic strains had a marked tendency to persist in the spleen of the guinea pig.

5) Solid anti-infectious immunity lasting for periods of at least four months could be produced in guinea pigs with the aid of live avirulent pseudotuberculosis bacilli. Though the strain 32 used for this purpose belonged to group IV, it also protected guinea pigs against infections with organisms belonging to the other four 0 groups.

6) Tests with different dosages of strain 32 indicated that guinea pigs could tolerate up to about 1 billion organisms. Even the administration of such enormous doses did not impair the health of the animals and produced no lesions.

7) Virulent pseudotuberculosis bacilli injected into immunized animals were no longer demonstrable ten days after challenge.

8) Administration of live cultures of avirulent immunogenic pseudotuberculosis strains afforded no protection against the toxin. The antitoxic serum protected against the toxin and to some degree also against infection with toxic strains, but not against infection with atoxic strains.—[*Untersuchungen ueber Pasteurella pseudotuberculosis—unter Berucksichtigung ihres immunologischen Verhalten. A monograph by Ernst Thal. State Veterinary Medical Institute, Stockholm, Sweden.*]—K.W.MEYER.

The Laboratory Diagnosis of Leptospirosis

In this book, the author has brought together many of the perplexing aspects of leptospirosis which confront the laboratory diagnostician. Diagnostic procedures concerning darkfield examination, cultural procedures and methods, animal inoculation, and serological techniques are particularly emphasized.

The advantages and deficiencies of the various diagnostic methods and other matters of direct interest to the laboratory investigator are so presented that one becomes quite conscious of the author's extensive experience.

Consideration is also given to morphology, staining methods, antigenic structure, and the characteristic of type Leptospira strains. Pertinent references are given.

This book is particularly recommended for the laboratory workers in this field as well as the undergraduate and graduate medical, veterinary, and pathogenic bacteriology students.—[*The Laboratory Diagnosis of Leptospirosis. By J. W.*

Wolff, Royal Tropical Institute, Amsterdam, The Netherlands. 99 pages. Illustrated. (Edited by Gilbert Dalldorf, M.D., director, Division of Laboratory and Research, New York State Dept. of Health, Albany, N. Y.) Charles C. Thomas, Springfield, Ill. 1954. No price given.]—SAM G. KENZY.

Public Administration Organizations — A Directory, 1954

The seventh edition of this useful reference book, published in June, 1954, is a directory of "unofficial organizations in the field of public administration in the United States and Canada." They are voluntary organizations working in the general field of public administration or in fields that fringe upon and affect public administration as pointed out in the preface of the book. The latter point was emphasized several years ago by Dr. L. A. Merillat in the JOURNAL when he commented that these voluntary associations, which cover all fields of activity from accounting to women, do exert great influence on all phases of public life, governmental and otherwise, through their respective organized efforts. Governmental agencies at all levels look to, and frequently call upon, these organizations for factual information which helps to determine public policies in many fields.

The organizations listed fall into three broad categories: those of or for public officials and administrators, 179; professional and technical societies, 234; and citizen organizations, 100, making a total of 513 organizations. The descriptions include name and address of the executive officer, membership figures, component organization set-up, source of finances, activities, and publications.

It is of interest that the AVMA is arbitrarily classified under agriculture as its sphere of interest and not medicine.

The book is a most useful reference for all persons interested in public administration affairs.—[*Public Administration Organizations. Published by Public Administration Clearing House, Chicago, Ill. Price $2.00*]—J. G. HARDENBERGH.

Diseases of Livestock

This book by an Australian author naturally deals with the principal diseases of livestock as they occur in Australia, with the diseases of sheep and cattle receiving prior consideration.

The third edition comprises 660 pages written, as the author states, in nontechnical language so that it may be useful to students of agricultural colleges, graziers, extension workers, and other nonveterinarians. The fact that veterinarians have used previous editions of the book as a reference text has prompted him to include a considerable amount of technical data which is not intended for the layman.

The writing of books on diseases of livestock for the layman is a difficult and contentious problem, as without some assistance from a trained source the reader is apt to become confused by the mass of information. This is not to say that such a book should not be written, but rather that the layman should be exhorted to seek help where available rather than attempt to diagnose and treat disease in his stock. The author has mentioned this point. He points out the pitfalls of diagnosis by the untrained observer and provides a key to differential diagnosis which is intended only as a rough guide in the absence of trained veterinary assistance.

Separate sections deal with diseases in sheep, cattle, pigs, cats and dogs, horses, and goats, with some useful information on feeding and management. There is a comprehensive section on parasitology containing host checklists of the parasites known to occur in each species with details of life history and treatment. Chapters on deficiency diseases, general disease conditions, and poisoning precede a chapter on diseases of animals affecting man. An appendix on dosages of antibiotics, sulfonamides, insecticides, anthelmintic mixtures, and antihistamine drugs is included.

The author has done a fine job of collating so much information on such a wide range of diseases. My only criticism concerns the use of proprietary names of drugs in which the principal chemical ingredient is not named in some cases. It is questionable whether the information contained in the appendix should be made available to the layman.

It is to be hoped that such a book in the hands of the layman will not deter him from seeking skilled veterinary assistance when available.—[*Diseases of Livestock. By T. G. Hungerford. 660 pages. 3rd. ed. Grahame Book Co., Sydney, Australia. 1953. Price $9.00.*]—F. G. FIELDER.

Swine Brucellosis

The results of an intensive study of swine brucellosis in Iowa over a period of several years has been compiled and published as a bulletin. The report portrays the confusion and the contradictions that exist in the diagnosis and control of this disease. The disease histories of many herds are given, 47 herds being included in table 1. Three plans which have been successful in controlling brucellosis by combining the agglutination test with isolation are outlined, the plan varying with the type of herd. Valuable information is given on the proper handling of blood samples and on a method of high temperature incubation which aids in distinguishing false from true agglutination reactions. The failure to produce immunity in pigs in controlled experiments with *Brucella abortus* strain 19 vaccine is reported. The results produced by experimentally induced infection, through various routes, with both *Brucella suis* and *Brucella melitensis* is also reported. Veterinarians who are interested in the subject will find much information of value.—[*Swine Brucellosis. By A. B. Hoerlein, E. D. Hubbard, T. S. Leith and H. E. Biester, Veterinary Medical Research Institute, Iowa State College, Ames, Iowa. 1954. Price not given.*]

THE NEWS

International Veterinary Federation of Zootechnics

At the end of 1945, the Veterinary Society for Zootechnics of Spain was a small group devoted to "the encouragement and furtherance of zootechnical research works among the Spanish veterinary surgeons and of their specialization and interest in livestock problems."

The fundamental missions of the Society were: (*a*) to unite all veterinary surgeons interested in zootechnics; (*b*) to direct the work in specialization, bibliography and compilation, and the ethnological and economical studies related to the zootechnical activities of the veterinary surgeon; and (*c*) to develop the zootechnical science to the benefit of the livestock economy of the country.

By the beginning of 1946, the Society had about 500 members. Many scientific study weeks were arranged for and 269 subjects were selected for study. The greatest part of this plan has already been executed and has constituted the basis for important congresses.

In 1947, when the Society had 3,000 members, with a special correspondent in each of the 50 Spanish provinces, relations with foreign countries were begun and a periodic review, *Anales de la Sociedad Veterinaria de Zootecnia,* was published.

Meanwhile, the Society was represented at all congresses held during that period — Milan, London, Stockholm, Rome, Paris, and the American conferences; trips through North America were also arranged.

The first congress was held in Madrid in 1947 and was attended by hundreds of Spanish veterinary surgeons and by delegations from Argentina, Italy, England, and Portugal. It resulted in four 1,000-page tomes which were a collection of the general reports and works of the sections.

The second congress of an international character was held in Madrid in 1951. About 2,000 veterinary surgeons from Spain and more than 200 foreign members from 25 countries took part. The result was six big tomes, copies of which were sent to all important libraries of the world.

The most important event of the second congress was the foundation of the International Veterinary Federation for Zootechnics. The Spanish society had succeeded in arousing the interest of several countries in constituting similar societies with the object of founding an international organization. The response surpassed all expectations, in some countries the already existing veterinary associations joining the Federation.

Professor De Vuyst of Belgium, an outstand-

(Continued on page 428)

Fig. 1—The literature review of the International Veterinary Federation of Zootechnics has reached a world-wide distribution, as can be seen from this map.

News From Washington

Dr. Frank A. Todd, until recently with the Federal Civil Defense Administration as veterinary consultant on Biological Warfare Defense, has been appointed **special assistant for Emergency Programs in the Agricultural Research Service, U.S.D.A.**

The Agricultural Research Service is extensively involved in the protection of the nation against biological warfare on crops and livestock. Dr. Todd will represent the administrator, Dr. Byron T. Shaw, in relations with the Commodity Stabilization Service under the Defense Production Act and in activities related to the Office of Defense Mobilization. He will serve as **Executive Secretary of the Emergency Planning Board,** and as ARS liaison officer with the Federal Civil Defense Administration and with the Munitions Board.

Dr. Todd's responsibilities will fall primarily within the fields of broad relationships, policy development or modification for defense purposes, and integration and coordination of program planning for the approval of the administrator. As the administration representative, he will counsel with ARS branches on activities related to defense. The branches, however, will continue to be responsible for program planning and operations within their assigned functional areas.

★ ★ ★

The director, Office of Defense Mobilization, has ordered established (Federal Register, Sept. 29, 1954) in that office the Manpower Policy Committee to assist the director to **improve the coordination and effectiveness of federal policies and programs relating to manpower,** and to advise the President on the effective mobilization and maximum utilization of manpower in the event of full mobilization.

The committee consists of the assistant director for manpower, O.D.M., as chairman, and representatives of the following departments: Defense, Agriculture, Commerce, Labor, Health, Education and Welfare, and the Federal Civil Defense Administration, the Housing and Home Finance Agency, the Selective Service System, the U.S. Civil Service Commission, and the Defense Transport Administration.

★ ★ ★

The Agricultural Research Service, U.S.D.A., held a conference on September 21 relative to **leptospirosis control activities.** Branch representatives from Animal Disease and Parasite Research, Meat Inspection, Animal Disease Eradication, and Animal Inspection and Quarantine, attended. Dr. Herbert G. Stoenner, Rocky Mountain Laboratory, Hamilton, Mont., who conducted extensive leptospirosis field investigations in the State of Washington during the past year, discussed that program, presented his conclusions, and made recommendations relative to the expansion of the program. **As a result of the conference, with others to be held, ARS will determine what leptospirosis control activities it will undertake.**

★ ★ ★

National Headquarters **Selective Service System Operations Bulletin No. 88, as amended, July 16, 1954, makes ineffective the amendment of Nov. 18, 1953,** whereby the induction of dual status registrants would be postponed until such time as their services could be utilized in a commissioned status by the Department of Defense (see JOURNAL, Nov. 1953, p. 469). The reasons for rescinding the November 18 amendment are that the requirements for physicians and dentists will, to a great extent, be met from regular registrants, **and in the case of veterinarians, the number of regular registrants is more than ample to supply the need for the Army and Air Force Veterinary Corps.**

AVMA Office Address in Washington

Brig. General James A. McCallam (Ret.)
Room 109, 1507 M Street, N.W.
Washington 5, D. C.

(Continued from page 426)

ing personality in European veterinary science, was appointed chairman, and a vice-chairman was designated for each country represented in the Federation. At present, the following countries are represented: Algiers, Argentina, Belgium, Bolivia, Brazil, Chile, Colombia, Ecuador, France, Great Britain, Germany, Guatemala, Holland, Italy, Japan, the Spanish and French protectorates in Morocco, Peru, Portugal, the territory of the Saar, Spain, Turkey, Uruguay, and Venezuela. The secretary general of the Spanish Society, Professor Cuenca, was appointed secretary general of the Federation, which now has about 1,200 members in about 60 countries.

The review, *Anales de la Sociedad Veterinaria de Zootechnia,* was replaced at the beginning of 1952 by *Zootechnia,* the present organ of the Federation which maintains an interchange with about 477 international organizations. Therefore, a magnificent zootechnical library is being constituted in Madrid. Bibliographical works are published in each number of *Zootechnia* in the form of an index and members in any country may request photocopies, microfilms, or even the complete original reviews.

These services require many employees and large premises for handling the extensive card catalogs, the interchange, the library, the editing section, and the administrative work in general. Both the national and international organizations are accommodated at 12 Isabel la Catolica St., Madrid, where all these services are installed.

The economic problem has been resolved through voluntary contributions from veterinarians and their organizations.

The Spanish society has an annual budget of $3,000 to $4,000 and the Federation has approximately the same amount. Other revenues are obtained from advertising in the review, from the livestock industries, from the veterinary laboratories in Spain and other member countries, and above all from the congresses.

A work of such an extensive nature can never be considered as finished but it has economic limitations. If these could be solved, the world-wide work of stimulating the interest of veterinary surgeons in zootechnical problems would be increased by a series of initiatives already prepared for. These include the organizations of frequent study weeks and scientific research meetings to which cattle breeders and other interested persons would be invited. The establishment of specialized courses by outstanding colleagues, the improvement of the review, *Zootechnia,* which should be enlarged and issued monthly, and the establishment of services for the members, especially of a bibliographical and documental character. It is estimated that these and many other activities would be possible if about $10,000 yearly were available.

To veterinarians in some countries, it might seem a little strange that the profession is interested in zootechnical questions. In other countries, the zootechnical field is the main subject of their professional activities. In general, it might be said that the Anglo-Saxon countries are among the first group, while the Latin countries, with some exceptions, form the second group.

Nevertheless, the world-wide zootechnical movement of the veterinary surgeons is increasing, as it is believed that the important problems of livestock can only be solved by biological and physiological knowledge of the living subject. The panveterinarian idea of animal breeding throughout the world is a logical consequence of the development and improvement of the veterinary sciences, so that in many countries the terms "veterinary surgeon," "veterinary medicine," and others have been replaced by that of "veterinary science."

The International Veterinary Federation for Zootechnics is devoted to the task of opening the way for the idea that the professional mission is wide and universal, extending to the field of animal breeding, genetics, hygiene, feeding, control of animal products, controlled reproduction, artificial insemination which is already universally considered as a patrimony of the veterinary profession, at least in its directive and applicative form, and the livestock economy of the nations.

The Federation wishes a close collaboration with all persons interested in these fields. To the veterinary surgeons throughout the world and, particularly, to the colleagues of the United States of America which marches ahead in so many fields of world technique, it offers its work and opens its doors in order to collaborate with them to the benefit of our profession and of humanity. —*Prof. Dr. Carlos Luis de Cuenca, General Secretary.*

STUDENT CHAPTER ACTIVITIES

Pennsylvania Chapter.—The following officers will serve the University of Pennsylvania Student Chapter of the AVMA during the fall semester of the school year, 1954-1955: Bernie Levine, president; Irving Lutsky, president-elect; James Mock, secretary; Don Waugaman, treasurer; and Dr. J. E. Martin, faculty advisor.

s/JOHN F. MUNNELL, *Retiring Secretary.*

WOMEN'S AUXILIARY

Convention Highlights.—The Ninety-First Annual Convention of the AVMA, held in Seattle, Wash., Aug. 23-26, 1954, will remain a happy memory for those who were fortunate enough to attend. Its magnificent nearby mountain peaks and ranges, including Mount Rainier, and Puget Sound with its evergreen shores, the ocean beaches, beautiful parks, attractive homes surrounded with flowers, the favored climate, and hospitality combined to make this

The officers of the Women's Auxiliary installed at the closing session of the AVMA annual meeting in Seattle were (left to right): Mrs. R. W. Gold (recorder), Mrs. John D. Stevens (treasurer), Mrs. Frank R. Booth, (secretary), Mrs. E. A. Woelffer (third vice-president), Mrs. Lewis H. Moe (second vice-president), Mrs. A. E. Coombs (first vice-president), Mrs. Earl N. Moore (president-elect), Mrs. L. R. Richardson (president). The retiring president, Mrs. Russell Runnells (extreme right) installed the new officers.

convention a memorable event. Our Auxiliary president, Mrs. Russell A. Runnells, extended greetings at the joint Opening Session.

In the afternoon, a large group enjoyed the women's tea and reception which was held in the Olympic Bowl of the Olympic Hotel.

There was a good attendance the following morning at the meeting of the Auxiliary House of Representatives. Several states, regions, and provinces were represented by delegates and many interested members also attended the meeting.

The luncheon, an outstanding annual function of the Auxiliary, was held at the Masonic Temple. A most enjoyable style show was presented by leading merchants.

Fourteen charter members of the Women's Auxiliary to the AVMA were awarded honorary

The receiving line at the Women's Tea and Reception held on Tuesday of convention week.

certificates. Four of the fourteen living charter members were present and attended the luncheon. They were Mrs. P. L. Cady, Arlington, Neb.; Mrs. Guy G. Graham, Kansas City, Mo.; Mrs. J. D. Grossman, Westerville, Ohio; and Mrs. H. Preston Hoskins, Evanston, Ill. The other living charter members are: Mrs. T. H. Ferguson, Lake Geneva, Wis.; Mrs. C. D. Folse, Kemah, Texas; Mrs. S. E. Hershey, Charleston, W. Va.; Mrs. A. T. Kinsley, Kansas City, Mo.; Mrs. Ashe Lockhart, Kansas City, Mo.; Mrs. R. P. Marsteller, Bryan, Texas; Mrs. N. S. Mayo, Highland Park, Ill.; Mrs. F. H. Schneider, Philadelphia, Pa.; Mrs. C. H. Stange, Knoxville, Tenn.; and Mrs. R. F. Bourne, Fort Collins, Colo.

The Women's Auxiliary to the AVMA was organized at the Kansas City, Mo., meeting in August, 1917. There were 55 charter members (*see* picture).

Tuesday evening, the AVMA and Auxiliary members were entertained in an unusual manner — the bus ride, ferry trip to Bremerton, and tour of the Puget Sound Naval Shipyard in Bremerton will always be remembered. The drive along the Hood Canal, with the beautiful Olympic Mountains in the background, to Twanoh State Park for the Indian Potlatch Salmon Bake, the great feast, and the Indian dances beside the huge campfire are pleasant memories.

At the annual business meeting on Wednesday, the report from the Auxiliary house of representatives was presented for approval. Reports of officers and committees were made and the following officers were elected for the ensuing year: Mrs. L. R. Richardson, Ravenna, Ohio, president; Mrs. Earl N. Moore, Wooster, Ohio, president-elect; Mrs. Alfred E. Coombs, Skowhegan, Maine, first vice-president; Mrs. Lewis H. Moe, Stillwater, Okla., second vice-president; Mrs. E. A. Woelffer, Oconomowoc, Wis., third vice-president; Mrs. Frank R. Booth, Elkhart, Ind., secretary; Mrs. C. M. Rodgers, Blandinsville, Ill., membership secretary; Mrs. John D. Stevens, Sequim, Wash., treasurer; and Mrs. R. W. Gold, Salt Lake City, Utah, recorder (house of representatives).

On Wednesday evening, the wives and families were invited to the alumni dinners which were followed by the president's reception and dance at the Civic Auditorium.

At the Closing Session of the AVMA meeting, the officers of the AVMA and the officers of the Women's Auxiliary were installed.

We are grateful to the Seattle hosts and hostesses who so royally entertained us and so efficiently transported us to the various functions.

S/(MRS. LEWIS H.) MARGUERITE MOE,
Second Vice-President.

APPLICATIONS

Applicants — Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., the names of applicants residing within the jurisdictional limits of the constituent associations shall be published once in the JOURNAL.

The following applicants have been certified as members of the constituent association that has jurisdiction over the area in which the applicant resides. This certification was made by the secretary of the constituent association in accordance with Section 2, Article X, of the Administrative By-Laws.

First Listing

ELLIS, RAYMOND O.
Oak Harbor, Wash.
D.V.M., Washington State College, 1945.

FILION, ROLAND
Veterinary Research Laboratory, St. Hyacinthe, Que.
D.V.M., School of Veterinary Medicine, Province of Quebec, 1938.

This picture appeared in the September, 1917, issue of the "American Journal of Veterinary Medicine" with the caption: "Luncheon given the Ladies' Auxiliary of the AVMA by ladies of the local committee" [Kansas City, 1917]. It was during the AVMA meeting in Kansas City in 1917 that the Women's Auxiliary to the AVMA was organized, with 55 charter members.

GUTIERREZ, FLORENCIA
600 W. 144th St., New York, N. Y.
D.V.M., University of Havana, 1953.

LEDGERWOOD, M. L.
Box 909, Okanogan, Wash.
D.V.M., Washington State College, 1937.

McFADDEN, MARLEY C.
1339 E. Main, Klamath Falls, Oreg.
D.V.M., Colorado A. & M. College, 1933.

PIRIE, GEORGE M.
912 4th St., N.E., Puyallup, Wash.
D.V.M., Washington State College, 1950.

SHOWALTER, RUSSELL A.
Box 122, Cumberland, Ind.
D.V.M., Indiana Veterinary College, 1915.

Applicants — Not Members of Constituent Associations

In accordance with paragraph (b) of Section 2, Article X, of the Administrative By-Laws, as revised at the annual meeting of the House of Representatives, Aug. 18, 1951, in Milwaukee, Wis., notice of all applications from applicants residing outside of the jurisdictional limits of the constituent associations, and members of the Armed Forces, shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, school, and year of graduation, post office address, and the names of his endorsers.

First Listing

FOSTER, JOSEPH B.
994 Rutland Road, Brooklyn, N. Y.
Vouchers: E. A. Rogoff and H. Sher.
D.V.M., University of Philippines, 1954.

Second Listing

BRENNER, CARL F., Medical Section, 7964 Army Unit, APO 21, c/o PM, New York, N. Y.

CASTRO, FRED E., 443 Baden Ave., South San Francisco, Calif.

1954 Graduate Applicants

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of student chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

First Listing

University of California

STORY, EUGENE C., D.V.M.
4819 V St., Sacramento, Calif.
Vouchers: G. H. Hart and J. D. Wheat.

Second Listing

University of California

ASHTON, RICHARD M., D.V.M., 11966 Ventura Blvd., North Hollywood, Calif.

HERRON, WILLIAM H. K., D.V.M., Rt. 2, Box 126, Norco Calif.

JOHNSON, EUGENE A., D.V.M., 2585 Soquel Dr., Santa Cruz, Calif.

University of Illinois

WILKIN, EDWIN K., D.V.M., 617 E. 5th St., Centralia, Ill.

Ontario Veterinary College

FRANKEL, MORRIS, D.V.M., 5732 W. Cermak Rd., Cicero, Ill.

COMMENCEMENTS

University of California.—The following names were inadvertently omitted from the list of candidates for the D.V.M. degree from the School of Veterinary Medicine, University of California, which was published in the August, 1954, JOURNAL, pp. 178-179. There were 52 candidates presented from this School.

Merrill A. Burt
Neal J. Dow
Norman S. Freed
William H. Huntley
Jack E. Jocoy
John W. Oliver
Herman C. Schlingman
Alvin Shapiro
Eugene C. Story

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University of Minnesota.—To the list of Minnesota graduates appearing in the August, 1954, JOURNAL, pp. 184, 186, should be added the name of Harold Strandberg. Dr. Strandberg received his D.V.M. degree during the March commencement exercises at the University of Minnesota.

U. S. GOVERNMENT

Veterinary Personnel Changes.—The following changes in the force of veterinarians in the U.S.D.A. Agricultural Research Service are reported as of Sept. 17, 1954.

NEW APPOINTMENTS

Izidorius Alisauskas, South St. Paul, Minn.
Bert W. Baird, Denver, Colo.
Owen D. Baker, Helena, Mont.
Alastair P. Barley, Baltimore, Md.
Walter E. Brewer, St. Louis, Mo.
Ashley J. Clarke, Jr., Fort Worth, Texas.
Jack R. Jones, Memphis, Tenn.
Jacob Kalmansohn, San Diego, Calif.
Kazys A. Krivickas, New York, N. Y.
A. J. Mabry, Baton Rouge, La.
Joseph Motiejunas, Chicago, Ill.
Edwin D. Peck, Olympia, Wash.
Christian Schenk, Des Moines, Iowa.
S. Lee Shepard, Springfield, Mass.

CANCELLATION of Appointments

Clifford L. Belfield, Jr., South St. Paul, Minn.
John C. Haromy, Jr., Jacksonville, Fla.
Norman D. Heidelbaugh, Jacksonville, Fla.

RESIGNATIONS

Joseph Barr, Baltimore, Md.
Wendel O. Belfield, Portland, Ore.
Billy W. Henderson, Helena, Mont.
William K. Hunter, Mexico City, Mex.
Roland S. Jefferies, Los Angeles, Calif.
David W. Johnson, Olympia, Wash.
William J. J. Pooley, South St. Joseph, Mo.
Staton G. Possien, Nashville, Tenn.

Robert P. Raemsch, Albany, N. Y.
William R. Streeter, Los Angeles, Calif.
Floyd V. Washko, Greenport, L.I., N. Y.

MILITARY FURLOUGHS

Harry F. Blanchard, Albuquerque, N. M.
Nils O. Isachsen, Baltimore, Md.
Jack N. Sohrbeck, Denver, Colo.
Soronda Swann, Kansas City, Kan.
John J. Swanson, Jr., South St. Paul, Minn.

RESTORATION After Military Furlough

Richard J. Unfer, Denver, Colo.
Saul T. Wilson, Jr., Columbus, Ohio.

RETIREMENTS

James E. Kelly, Fort Dodge, Iowa.
David C. Wilke, Portland, Ore.

DEATH

Dennis Coughlin, Topeka, Kan.

TRANSFERS

Lowell R. Barnes, from Albany, N. Y., to Indianapolis, Ind.
Clarence E. Bolton, from Montpelier, Vt., to Buffalo, N. Y.
Gail R. Comfort, from Chicago, Ill., to Salt Lake City, Utah.
Walter A. German, from Pittsburg, Kan., to Amarillo, Texas.
Willard C. Higsby, from Harrisburg, Pa., to Richmond, Va.
Thomas K. Jones, from Indianapolis, Ind., to Springfield, Ill.
Paul R. Lanphear, from Springfield, Ill., to Champlain, N. Y.
William W. McMichael, from Des Moines, Iowa, to St. Paul, Minn.
Eric H. Nordstrum from St. Paul, Minn., to Madison, Wis.
Keith E. Peterson, from Seattle, Wash., to Salt Lake City, Utah.
William M. Peterson, from Sacramento, Calif., to Olympia, Wash.
Robert D. Schupbach, from Washington, D. C., to Denver, Colo.
Charles P. Smith, from Omaha, Neb., to Lansing, Mich.
Harold A. Waters, from Portland, Ore., to New York, N. Y.

AMONG THE STATES AND PROVINCES

California

Central Association.—On September 28, members of the Central California Veterinary Medical Association and their families enjoyed a picnic at Roeding Park near Fresno.

s/HERBERT N. PIPER, *Secretary.*

Colorado

Dr. Adams to Head Clinic and Surgery Department.—Dr. O. R. Adams (COL '46) has been named head of the newly combined Department of Clinics and Surgery at the School of Veterinary Medicine, Colorado State College, at Fort Collins.

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Personal.—Dr. Merlin L. Kaeberle was recently honored when he received the D.V.M. degree with a straight A scholastic record, the first such record by a Colorado A. & M. veterinary graduate. He received a special award from the Phi Kappa Phi scholastic honorary fraternity.

Florida

Personal.—Dr. William J. Weber (OSU '53) announces the opening of the Leesburg Veterinary Hospital in Leesburg, Fla. Dr. Weber was formerly associated with the Marion Veterinary Hospital in Ocala, Fla. His new hospital will accommodate both large and small animals.

Illinois

Mississippi Valley Association.—The Mississippi Valley Veterinary Medical Association celebrated its golden anniversary at its fiftieth annual meeting in the Hotel Pere Marquette, Peoria, on Oct. 27-28, 1954.

Some of the outstanding speakers who addressed the group were **Drs. A. H. Quin,** Kansas City, Mo., president of the AVMA; **J. D. Ray,** White Hall, Ill.; **L. E. Boley,** University of Illinois, Urbana; **F. K. Ramsey,** Iowa State College, Ames; **R. R. Dykstra,** Kansas State College, Manhattan; **Isaac E. Hayes,** Waterloo, Iowa; **George MacLean,** Galesburg, Ill.; and **Ralph L. Witter,** University of Illinois, Urbana.

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Northern Illinois Association.—On Sept. 22, 1954, the fall meeting of the Northern Illinois Veterinary Medical Association was held at the Hotel Faust in Rockford. The following speakers comprised the program: **Drs. A. H. Craige, Jr.,** Pitman-Moore Co., Plainfield, Ind.; **H. P. Wessels,** Geneva; **A. K. Merriman,** Sullivan; **J. O. Alberts,** College of Veterinary Medicine, University of Illinois, Urbana; **A. C. Todd,** Department of Veterinary Medicine, University of Wisconsin, Madison; and **G. T. Edds,** Fort Dodge Laboratories, Fort Dodge, Iowa.

In the evening, those in attendance enjoyed a banquet and entertainment in the ballroom of the Faust Hotel.

s/J. W. BOLLER, *Secretary.*

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Dr. Woods Joins Air Force.—Dr. G. T. Woods (KSC '46) has left the staff of the College of Veterinary Medicine at the University of Illinois for two years of active duty with the Air Force. Dr. Woods, a captain in the Air Force Reserve, expects to be stationed in the Far East.

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Dr. Brodie Joins College Staff.—Dr. Bruce Brodie (MSC '51) has joined the staff of the University of Illinois College of Veterinary Medicine as an instructor in veterinary clinical medicine. He will serve as clinician for the ambulatory service offered by the College.

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Personal.—Dr. L. R. Bain (KSC '41) has resigned from the staff of the College of Veteri-

nary Medicine, University of Illinois, Urbana, to enter private practice at Macomb, Ill. Prior to joining the staff of the College in 1951, Dr. Bain had worked for the U. S. BAI and had conducted private practices in McCune, Kan.; and Plymouth and Abingdon, Ill.

Indiana

Short Course for Veterinarians.—The forty-second annual short course for veterinarians, sponsored by Purdue University, was held at the University Oct. 6-8, 1954.

The following guest speakers participated in the scientific program: **Drs. W. A. Aitken,** Chicago, Ill., editor-in-chief of AVMA publications; **J. P. Arnold,** University of Minnesota, St. Paul; **H. S. Bryan,** University of Illinois, Urbana; **F. H. Fox,** New York State Veterinary College, Cornell University, Ithaca; **J. W. Green,** state veterinarian, Indianapolis; **L. R. Barnes,** U. S. Department of Agriculture, Indianapolis; **D. S. Kline,** Boswell; **R. E. Mattson,** Brookston; **M. D. Newhauser** and **R. F. Portman,** Lafayette; **F. W. Schofield,** Ontario Veterinary College, Guelph, Ont.; and **R. E. Smith,** Medical Division, Sharp and Dohme, West Point, Pa.

Members of the University staff who participated were: **Drs. J. F. Bullard, Doris E. Bunnell, R. G. Carlson, R. M. Claflin, Olive Davis, A. L. Delez, C. R. Donham, L. P. Doyle, V. C. Freeman, G. D. Goetsch, D. P. Gustafson, E. O. Haelterman, F. A. Hall, B. W. Hatcher, Wilson Henderson, L. E. Hoffman, F. L. Hovde, H. L. Hurst, L. M. Hutchings, R. K. Jones, L. G. Morehouse, H. E. Moses, C. B. Murphy, George Neher, W. R. Pritchard, H. J. Reed, A. P. Stewart, C. B. Swenson, N. J. Volk,** and **F. L. Walkey.**

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Indiana and Illinois Association.—On September 17, the Indiana-Illinois Veterinary Medical Association met in Washington, Ind., to hear **Dr. Paul Wallace** of Cynthiana discuss shipping fever and other diseases of cattle; **Dr. M. S. Sheehey,** Washington, talk on swine diseases; and **Dr. L. A. Clark,** Bedford, on diseases of poultry. There was much interested discussion from the floor on these subjects. **Dr. Pei-Wen Chang,** Vincennes, reported on the veterinary medical symposium held in Cincinnati, Ohio, September 16.

Dr. and Mrs. H. F. Page of Washington were hosts.

s/J. L. KIXMILLER, *Resident Secretary.*

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Tenth District Association.—The August 19 meeting of the Tenth District (Ind.) Veterinary Medical Association was a picnic which included the families of members.

On September 16, the Association met in Indianapolis to hear **Dr. Joe Green,** state veterinarian, discuss brucellosis and tuberculosis testing and the importance of cooperation between practitioners and the department of agriculture. **Dr. L. R. Barnes,** in charge of ARS in Indiana, spoke on scabies in sheep.

s/J. L. KIXMILLER, *Resident Secretary.*

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Wabash Valley Association.—The Wabash Valley Veterinary Medical Association met in North Manchester on September 15. **Dr. Daniel L. Thomas,** of the Ohio State University Experiment Station, Wooster, presented charts and an interesting talk on recent experiments on shipping fever in cattle.

After the dinner, the women met at the home of Dr. and Mrs. H. Stevens.

s/J. L. KIXMILLER, *Resident Secretary.*

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Michiana Association.—On Aug. 12, 1954, the Michiana Veterinary Medical Association held its monthly meeting in the Hotel LaSalle in South Bend, with a large group in attendance, including several newcomers and students.

Following the business meeting, **Dr. William Magrane** gave a very instructive talk on canine ophthalmology.

Mrs. Magrane entertained the women with a report of the "lighter" side of Dr. and Mrs. Magrane's year at the University of Pennsylvania.

s/PAUL W. HOUGH, *Secretary.*

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Ninth District Association.—The bimonthly meeting of the Ninth District (Ind.) Veterinary Medical Association was a picnic held in Spring Mills Park in Mitchell. There was no speaker at this meeting. Officers of the Association are Drs. R. S. Boren, Greenwood, president, and George Davis, Franklin, secretary-treasurer.

s/J. L. KIXMILLER, *Resident Secretary.*

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Northeastern Association.—The first fall meeting of the Northeastern Indiana Veterinary Medical Association was held at Baer Field near Fort Wayne. **Dr. C. H. Stengel** of Indianapolis spoke on his experiences during two years in Japan, with the U. S. occupation forces, after World War II.

s/J. L. KIXMILLER, *Resident Secretary.*

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Personals.—Dr. Edward Aaron (TEX '43), who spent three years in the Army, part of which was in Korea and Japan, and who recently completed a year in Columbia University School of Public Health, has accepted a position with the Fort Wayne Public Health Department.

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Mrs. J. P. Ryan of Arcola, wife of Dr. J. P. Ryan, died Sept 4, 1954, in St. Joseph Hospital in Fort Wayne.

Iowa

Midwest Small Animal Association Program.—Dr. Frank R. Booth, Elkhart, Ind., president of the Midwest Small Animal Association, has announced that the program committee for the annual meeting, to be held in the Burlington Hotel, Burlington, Iowa, Nov. 10-11, 1954, consists of Drs. C. P. Hodder, R. B. Koger, R. E. Ruggles, and M. J. Skala. The chairman is Dr. Grant Misener of Chicago.

Some of the speakers scheduled to address the scientific sessions are **Drs. L. K. Firth,** Canton, Ohio; **S. W. Haigler,** St. Louis, Mo.; **George Freier,** Benton Harbor, Mich.; **H. L. Decker** and **R. L. Messer,** Indianapolis, Ind.; **R. W. Worley,** South Bend, Ind.; **Jack Dinsmore,** Glenview, Ill.; **Darrell S. Steele,** Minneapolis, Minn.; **William F. Irwin,** Tulsa, Okla.; **Elvin G. Cole,** Sioux City, Iowa; **Grant Misener, Mark Davenport,** and **T. A. Kragness,** Chicago.

The traditional catfish dinner will be served the evening of November 11, and a special program is being planned for this event.

Dr. Booth invites all veterinarians, whether they are members or not, to attend. A special program is planned for the wives.

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Swine Disease and Nutrition Conference.—The Division of Veterinary Medicine, Iowa State College, and the Iowa Veterinary Medical Association sponsored a swine disease and nutrition conference for veterinarians on July 27-28, 1954, at the college.

The following speakers participated in the program: **Drs. L. P. Doyle,** Department of Veterinary Medicine, Purdue University; **James Jensen,** provost, Iowa State College, **W. P. Switzer** and **E. D. Hubbard,** Veterinary Medical Research Institute, Grinnell; **L. D. Payne,** Department of Veterinary Physiology, Iowa State College, **R. W. Luecke,** Department of Agricultural Chemistry, Michigan State College, East Lansing; **E. L. Qauife,** Animal Husbandry Extension, Iowa State College; **H. L. Chapman, Jr.,** Department of Animal Husbandry, Iowa State College; **W. L. Sipple,** Coastal Plains Experiment Station, University of Georgia, Gainesville; **Carroll Plager,** Hormel, Co.; **E. O. Haelterman,** Department of Veterinary Medicine, Purdue University, Lafayette, Ind.; **W. S. Monlux,** Department of Veterinary Pathology, Iowa State College; **Paul Bennett,** Iowa Veterinary Medical Diagnostic Laboratory; **C. D. Lee** and **M. L. Spear,** veterinary medical extension, Iowa State College.

s/I. A. MERCHANT, *Dean.*

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Cedar Valley Association.—On September 13, the Cedar Valley Veterinary Medical Association met in Waterloo. The program consisted of a panel on current problems encountered in the field. It included **Drs. R. M. Hofferd,** Corn States Laboratories; **Wm. Lynch,** Allied Laboratories; and **J. R. Dick,** Fort Dodge Laboratories. Following the presentation of several interesting cases by each of these men, they answered questions from the floor.

There were 48 veterinarians present.

s/D. A. BUCHANAN, *Secretary.*

Massachusetts

State Association.—The regular monthly meeting of the Massachusetts Veterinary Association was held Sept. 22, 1954, at the Highland Hotel in Springfield, during the week of the Eastern States Exposition.

The guest speaker, **Dr. Wayne N. Plastridge,** bacteriologist, Storrs Experiment Station, University of Connecticut, discussed vibriosis.

s/C. LAWRENCE BLAKELY, *Secretary*

Michigan

Southeastern Association.—On September 22, members of the Southeastern Michigan Veterinary Medical Association met at the Croatian Center near Detroit, to hear **Mr. N. A. Lentine** discuss the usage of dextran, a new type of plasma expander. Members also participated in a group discussion of television programs and the rabies report.

s/GILBERT MEYER, *Secretary.*

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Personal.—Dr. Albert Sanders, Jr. (CVC '08) of Stephenson was signally honored at a banquet on August 28 in recognition of his forty-two years of constant, unselfish veterinary service to the community. Over 300 persons were said to have been turned away because of lack of room at the banquet.

Minnesota

Postgraduate Course.—On Sept. 7-8, 1954, the University of Minnesota held its thirty-first annual postgraduate conference for veterinarians at the veterinary clinic on the St. Paul campus, with 75 in attendance. Members of the committee in charge were Drs. J. H. Sautter, D. K. Sorensen, and R. A. Merrill.

The following guest speakers appeared on the program: **Drs. D. R. Eveleth,** Department of Veterinary Science, North Dakota Agricultural College, Fargo; **D. C. Innes,** Slayton; **N. L. Jacobson,** Department of Dairy Husbandry, Iowa State College, Ames; **A. B. Magnusson,** Blooming Prairie; and **C. K. Whitehair,** Department of Physiology, School of Veterinary Medicine, Oklahoma A. & M. College, Stillwater.

The following staff members of the University of Minnesota also participated in the program: **Drs. J. L. Morrill, Harold Macy, T. H. Fenske, A. A. Dowell, J. O. Christianson, W. T. S. Thorp, J. P. Arnold, Paul M. Burson, A. L. Good, N. J. Griffiths, Paul Hammond, H. H. Hoyt, E. L. Johnson, H. C. H. Kern-**

kamp, R. L. Kitchell, L. L. Larson, R. K. Kindorfer, C. F. Mataney, G. W. Mather, R. A. Merrill, B. S. Pomeroy, B. J. Porter, C. E. Rehfeld, M. H. Roepke, C. J. Rosell, Frank Sauer, J. H. Sautter, J. M. Sieburth, D. K. Sorensen, F. A. Spurrell, C. L. Stowe, M. Stromberg, A. F. Weber, G. F. Wolf, and **R. Zemjanis.**

s/HENRY J. GRIFFITHS, *Resident Secretary.*

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Twin City Society.—The Twin City Veterinary Medical Society met at the University of Minnesota in St. Paul on September 7 to hear **Dr. W. T. S. Thorp,** dean of the School of Veterinary Medicine, discuss veterinary public health.

Officers of the Society are Drs. E. L. Fitch, Minneapolis, president; H. H. Hoyt, St. Paul, first vice-president; O. B. Gochnauer, Minneapolis, second vice-president; and G. W. Mather, St. Paul, secretary-treasurer.

s/HENRY J. GRIFFITHS, *Resident Secretary.*

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Staff Appointments at University.—Five appointments to the staff of the School of Veterinary Medicine, with the rank of instructor, have been made recently. Drs. D. R. Knauff (GA '54) and E. D. Besch (TEX '54) joined the Division of Pathology and Parasitology, and Dr. M. W. Stromberg (MIN '54) the Division of Anatomy. In the clinical field, Dr. W. F. Cates (MIN '54) was appointed to the Division of Veterinary Medicine, and Dr. L. L. Larson (MIN '53), formerly in practice at Westby, Wis., joined the Division of Veterinary Obstetrics.

s/HENRY J. GRIFFITHS, *Resident Secretary.*

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Personal.—Dr. M. L. Livingston (MSC '50) has purchased the interest of Dr. B. J. Lattimer in the veterinary partnership of Lattimer and Livingston, Springfield, Minn., and will continue the practice under his name. Dr. Lattimer has retired after thirty-eight years of practice.

Mississippi

Personal.—Dr. Robert E. Kimmel (GA '52) has purchased the McComb Animal Hospital from Dr. J. R. Broussard, Jr. Dr. Kimmel had been practicing in Magnolia.

Missouri

Kansas City Association.—On September 21, the Kansas City Veterinary Medical Association met in the Livestock Exchange Building in Kansas City, Mo. The program consisted of clinical demonstrations with discussions on small animal medicine and surgery, with the following participants: **Drs. Tom Eagle,** moderator; **Drs. R. C. Wright** and **J. A. Farney,** intramedullary pinning; **J. A. Zacher,** tonsillectomy; **R. D. Holder,** ear trimming; **C. C. Hamilton,** ear medicine and surgery; **T. A. Meininger,** hysterectomy; and **F. B. Ogilvie,** practical use of plaster of paris in fracture immobilization. **Dr. A. H. Quin,** president of the AVMA, reported on Association activities and plans.

s/J. C. DAVIS, *Secretary*

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Greater St. Louis Association.—On September 3, the Greater St. Louis Veterinary Medical Association met at the Sheraton Hotel. **Dr. H. E. Whitmire,** of the Whitmire Research Laboratories of St. Louis, discussed the toxicity of insecticides.

The business session was devoted to making arrangements for the meeting of the state association which will be held Feb. 21-22, 1955.

s/LUTHER E. FREDRICKSON, *Secretary.*

New Mexico

Dr. Quin Made Honorary Member of State Association.—Dr. A. H. Quin, Kansas City, Mo., president of the AVMA, was elected to honorary life membership by the New Mexico Veterinary Medical Association at its 1954 annual meeting in Santa Fe on September 13-14. Dr. Quin attended his first New Mexico V.M.A. meeting in 1937.

New York

Death of Dr. Bruce Blair.—Dr. Bruce Blair, widely known veterinarian, consultant, and former chief veterinarian of the Ellen Prince Speyer Hospital for Animals in New York City, died on Sept. 6, 1954, at the age of 70. Born in Philadelphia, he received his veterinary medical training at the University of Pennsylvania and then went to New York where he practiced for a few years before going to New Jersey where he specialized in equine practice.

In 1913, Dr. Blair was appointed chief veterinarian at the Speyer Hospital, working there in the mornings and carrying on his New Jersey practice in the afternoons. In 1918, he opened a small animal practice in New York City, continuing his active Speyer Hospital connection until 1934. He was well known to many celebrities who brought their pets to his private hospital where he handled thousands of cases every year.

Dr. Blair was active in local, state, and national veterinary associations. He was admitted to the AVMA in 1913. His only immediate survivor is a sister at whose home in West Boylston, Mass., his death occurred.

North Carolina

Southern Association.—The thirty-seventh annual convention of the Southern Veterinary Medical Association was held Oct. 18-20, 1954, at the George Vanderbilt Hotel in Asheville, N. Car.

The following speakers presented papers at

the scientific sessions: **Drs. W. S. Bailey,** head, Department of Pathology and Parisitology, Alabama Polytechnic Institute, Auburn; **N. G. Baird,** Lumberton, N. Car.; **D. E. Bartlett,** American Breeder's Service, Chicago, Ill.; **J. D. Beck,** School of Veterinary Medicine, University of Pennsylvania, Philadelphia; **C. E. E. Bunn,** Sharp and Dohme, West Point, Pa.; **W. G. Brock,** president, Southern Veterinary Medical Association, Dallas, Texas; **C. L. Bromley,** Atlanta, Ga.; **F. T. Candlin,** Denver, Colo.; **E. E. Chambers,** Chattanooga, Tenn.; **K. B. Haas,** Loyola University, Chicago, Ill.; **A. A. Husman,** Raleigh, N. Car.; **J. I. Neal,** Southern Pines, N. Car.; **J. C. Osborne,** Veterinary Section, North Carolina State College, Raleigh; **L. J. Poelma,** Maryland State Board of Agriculture, College Park; **A. H. Quin,** Kansas City, Mo., president, AVMA; **C. B. Randall,** Kinston; **J. D. Schaffer,** Brunswick, Ga.; **C. M. Sellars,** Burlington, N. Car.; **R. T. Stapleton,** Fayetteville, N. Car.; **T. L. Steenerson,** Wilkinson, Ind.; **C. D. Van Houweling,** director, Livestock Regulatory Programs, Washington, D. C.; **C. L. Williams,** Rome, Ga.; and **C. P. Zepp,** New York City.

Social activities included the golf tournament, "welcome to Asheville" sponsored by the North Carolina State Veterinary Medical Association, and the president's dinner dance.

s/A. A. HUSMAN, *Secretary.*

Ohio

Death of Dr. N. D. Backus.—Dr. N. D. Backus, prominent veterinarian and business man of Elyria, died in September, 1954, aged 75, following a stroke. Born on a farm in New York State, Nov. 2, 1879, Dr. Backus attended public schools, and then entered Cornell University in 1902, from which he received his veterinary degree three years later. He did disease control work for a time and then entered a practice partnership in Geneva, N. Y., where he remained until 1911 when he removed to Elyria.

In addition to his professional work, Dr. Backus became interested in civic affairs and served two terms as sheriff of Lorain County. Later, he operated a hotel for several years, was elected Lorain County treasurer for two terms, and then returned to veterinary practice in 1934. He discontinued this work in 1941, was elected to the Ohio General Assembly the same year, and served three terms. In 1949, he was made veterinarian for the State Racing Commission and so continued until 1952.

Dr. Backus was active in many community affairs for years, and in his state and national professional associations. He was admitted to the AVMA in 1916 and was made a life member in 1953. He is survived by his widow, a married daughter, and three cousins.

Ontario

Canadian Veterinary Medical Association.—The sixth annual meeting of the Canadian Veterinary Medical Association was held in Ottawa, Ont., on Aug. 30-Sept. 1, 1954.

The president, **Dr. Joseph Dufresne,** prefect

Among those participating in the sixth annual meeting of the Canadian Veterinary Medical Association were (left to right): Drs. A. H. Quin, president, AVMA; R. McG. Archibald, president, C.V.M.A.; T. Lloyd Jones, principal, Ontario Veterinary College; and Joseph Dufresne, immediate past-president of the C.V.M.A.

of studies, School of Veterinary Medicine, St. Hyacinthe, Que., recommended that the C.V.M.A. establish its own veterinary journal and reported that a study of the problem had been instituted. Other veterinarians participating in the program included: **Drs. A. H. Quin,** president of the AVMA; **T. Lloyd Jones,** Guelph, Ont.; **John A. Charlton,** M.P., Paris, Ont.; **R. H. Wright,** Dundas, Ont.; **E. F. Johnston,** Carps, Ont.; **J. Paul Villeneuve,** Joliette, Que.; **J. B. McSherry** and **C. A. V. Barker** of the Ontario Veterinary College; **J. D. Nadeau,** École de Médecine Vétérinaire, St. Hyacinthe, Que.; **M. Mercure, Chas. M. Baker,** and **J. S. Jasmin,** Montreal; **D. G. Dale,** Macdonald College, Que.; **Edith Williams,** Toronto; **G. F. B. Barton,** Chilliwack, B. C.; and **H. L. Chute,** University of Maine, Orono.

The Canadian Association now has in excess of 1,200 paid up members.

The newly elected officers are as follows: president, R. McG. Archibald, Truro, Nova Scotia; vice-president, Paul Villeneuve, Joliette, Que.; secretary-treasurer, Orlan Hall, Ottawa, Ont.; executive secretary, Claude Kealey, Ottawa, Ont.; western representative, G. F. R. Barton, Chilliwack, B. C.; and eastern representative, R. V. L. Walker, Ottawa, Ont.

s/CLAUDE KEALEY, *Executive Secretary.*

Pennsylvania

State Association.—The seventy-second annual convention of the Pennsylvania State Vet-

erinary Medical Association was held at Pocono Manor Inn, Pocono Manor, on Oct. 13-15, 1954.

The following speakers addressed the group: **Drs. M. G. Fincher,** New York State Veterinary College, Cornell University, Ithaca; **J. Allyn Rogers,** Bryn Mawr; **James V. McCahon,** Downingtown; **Raymond Fagan,** Philadelphia; **F. George Sperling,** New Bolton Center, University of Pennsylvania, School of Veterinary Medicine, Kennett Square; **Sten Erik Olsson,** Royal Veterinary College, Stockholm, Sweden; **Robert S. Brodey, James H. Mark,** and **John E. Martin,** School of Veterinary Medicine, University of Pennsylvania, Philadelphia; **H. W. Dunne,** Pennsylvania State University, State College; **A. L. Brueckner,** Maryland State Livestock Sanitary Service, College Park, Md.; **Howard A. Milo,** Animal Research Service, Harrisburg; **Francis A. Spurrell,** Division of Veterinary Surgery and Radiology, School of Veterinary Medicine, University of Minnesota, St. Paul; and **M. A. Schooley,** Armour Laboratories, Chicago, Ill.

Social activities included a square dance and fellowship dinner.

s/RAYMOND C. SNYDER, *Secretary.*

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Bucks-Montgomery Association.—On September 22, members of the Bucks-Montgomery Veterinary Medical Association met at the Moose Home in Doylestown for a round-table discussion of current practice problems.

s/V. W. RUTH, *Secretary.*

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Poultry Research Building at State University.— The new building for research in poultry diseases (*see* October JOURNAL, pp. 343-344) is at Pennsylvania State University, State College, and not at the University of Pennsylvania as mentioned in this item.

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Personal.—Dr. Jack Krauss (UP '45), who was separated from the Army on Sept. 30, 1954, has resumed his practice at his hospital at 2004 North Cameron St. in Harrisburg.

Quebec

College of Veterinary Surgeons.—The annual convention of the College of Veterinary Surgeons of the Province of Quebec was held at the Mont Royal Sheraton Hotel in Montreal on August 13-14.

The following speakers addressed the scientific session: **Drs. W. S. Gochenour,** Pitman-Moore Co., Indianapolis, Ind.; **Jean Flipo,** School of Veterinary Medicine, St. Hyacinthe; **Kenneth B. Haas,** Upjohn Co., Kalamazoo, Mich.; **Paul Marois,** Institute of Microbiology and Hygiene, University of Montreal; **M. A. Schooley,** Armour Laboratories, Chicago, Ill.; **Laurent Michaud,** Merck and Co., Inc., Rahway, N.J.; **J. E. Fahey,** Connaught Medical Research Laboratories, University of Toronto, Toronto, Ont.; **Roland Filion,** Veterinary Research Laboratory, St. Hyacinthe; **Clifford L. Chappel,** Ayerst, McKenna and Harrison Ltd., Montreal; **Martin Trepanier,** School of Veterinary Medicine, St. Hyacinthe; **Camille Leveille,** Rivière-du-Loup; **J. Edouard Roy,** Levis; **J. S. Jasmin,** Montreal; **Anselme Roy,** Plessisville; **Noel Lapierre,** Thetford Mines; and **Paul Villeneuve,** Joliette.

At the banquet, the St. Eloi Medal was awarded to Dr. F. W. Schofield for his contribution to veterinary medicine in Canada.

s/ROLAND FILION, *Resident Secretary.*

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New Board of College of Veterinary Surgeons.—The following have been elected to the College of Veterinary Surgeons for the year 1955-1956: Drs. Paul Villeneuve, Joliette, president; Philippe Demers, Shawinigan, vice-president; Laurent Choquette, Macdonald College, secretary-treasurer; J. D. Nadeau, St. Hyacinthe registrator; and as Governors—Drs. G. Edouard Breton, Arthabaska; Edouard Roy, Lévis; G. O. Comtois, Montreal; and Roland Filion, St. Hyacinthe.

s/ROLAND FILION, *Resident Secretary.*

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Dr. Schofield Honored.—During the banquet of the convention of the College of Veterinary Surgeons of the Province of Quebec, held at the Mont Royal Sheraton Hotel, in Montreal, Dr. Schofield was awarded the St. Eloi Medal for his outstanding contributions to veterinary science in Canada.

During Dr. Schofield's long and distinguished career in the field of veterinary science, he has contributed more than 100 papers to this and closely allied sciences. The developement and present extensive use of the anticoagulant coumarin in all phases of medicine is the direct result of fundamental research conducted in 1923 by Dr. Schofield on sweet clover poisoning in cattle.

Dr. Schofield has also received the honorary degree of Doctor of Veterinary Medicine from the Veterinary Faculty of the Ludwig-Maximilian University at Munich, Germany, and the Twelfth International Veterinary Congress Prize offered by the AVMA each year to a member for exceptional service to veterinary science and the veterinary profession.

s/ROLAND FILION, *Resident Secretary.*

Texas

Death of Colonel Schwalm.—Colonel Oscar C. Schwalm, U. S. Army (ret.), died Sept. 20, 1954, at his home in San Antonio.

Colonel Schwalm was born in Troy, Ill., Sept. 10, 1891. He received his degree in veterinary medicine from Grand Rapids Veterinary College in 1917. He accepted an appointment as second lieutenant in the Regular Army in 1920 and attained the grade of colonel in 1944.

Colonel Schwalm served at various stations in the United States and in Panama. He was a graduate of the Army Veterinary School, class of 1921, and the postgraduate course in 1935. From 1946 to 1949, he was traveling veterinary consultant with station at Chicago, Ill., and was on duty at Fort Sam Houston, Texas, at the time of his retirement on Nov. 30, 1950.

Surviving are his widow, Mrs. Cora A. Schwalm of 317 Wildrose Ave., San Antonio, Texas; a daughter, Mrs. Virginia E. Reid, wife of Major Joseph E. Reid, V.C., U. S. Army; and two sons, Arthur E. and Harold E. Schwalm.

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Coastal Bend Association.—At the regular meeting of the Coastal Bend Veterinary Association on Sept. 8, 1954, the following officers were elected: Drs. Paul P. Brandes, Corpus Christi, president; Tom Thaxton, Falfurrias, vice-president; and J. Marvin Prewitt, Corpus Christi, secretary-treasurer.

This Association meets on the third Wednesday of each month. The time and place are announced by postcard.

s/J. E. HOBAN, *Retiring Secretary.*

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Dr. Foust Joins Texas A. & M. Staff.—Dr. Harry L. Foust (OSU '14), professor and head of the Department of Veterinary Anatomy at Iowa State College for a quarter of a century, from which positions he retired in 1952, has joined the staff of Texas A. & M. College System as a veterinary consultant.

The appointment is under a combined agreement between the Foreign Operations Administration, U.S.A., the University of Dacca, and the Texas A. & M. College System.

Dr. Foust will be stationed at the Veterinary and Animal Husbandry College, University of Dacca, Dacca, East Pakistan, for some time; later, he will go to Mymensingh in the same country, where a new set of buildings for the veterinary college is under construction.

Southwest Veterinary Medical Symposium.—The Southwest Veterinary Medical Symposium was held Nov. 5, 1954, at the Hilton Hotel in Fort Worth, under the sponsorship of the Tarrant County Veterinary Medical Association. The following speakers presented papers at the scientific session: **Drs. H. L. Leighton,** East Longmeadow, Mass.; **R. A. Bankowski,** University of California, Davis; **Frank X. Gassner,** Colorado A. & M. College, Fort Collins; **Donald Price,** A. & M. College of Texas, College Station; **A. L. Kleckner,** University of Georgia, Athens; **M. J. Swenson,** Kansas State College, Manhattan; and **Gerald Dikmans,** Ionia, Mich.

s/DRUE S. WARD, *Program Chairman.*

FOREIGN NEWS

Czechoslovakia

Private Practice Abolished.—Since 1948, veterinary services in Czechoslovakia have been completely reorganized with private practice abolished. All are now within the Ministry of Agriculture which operates partly through county and district national committees.—*Vet. Bull., Aug., 1954.*

Ethiopia

Emperor Selassie Opens Pasteur Institute in Ethiopia.—Realizing the value of veterinary medicine to the economy of his nation, Haile Selassie I, emperor of Ethiopia, formally opened the Institute Pasteur of Ethiopia on Dec. 3, 1953. This will bring effective veterinary diagnostic service and the development of biological products to this country.

Interestingly, the personnel is composed of technicians of such varied nationalities as to suggest a small United Nations. Among the many divisions of the Institute are bacteriology, organic and biological chemistry, entomology, fermentation, parasitology, and the manufacture of biological products.

The main building of the Pasteur Institute in Ethiopia. The inset shows the emperor looking through a microscope following dedication ceremonies.

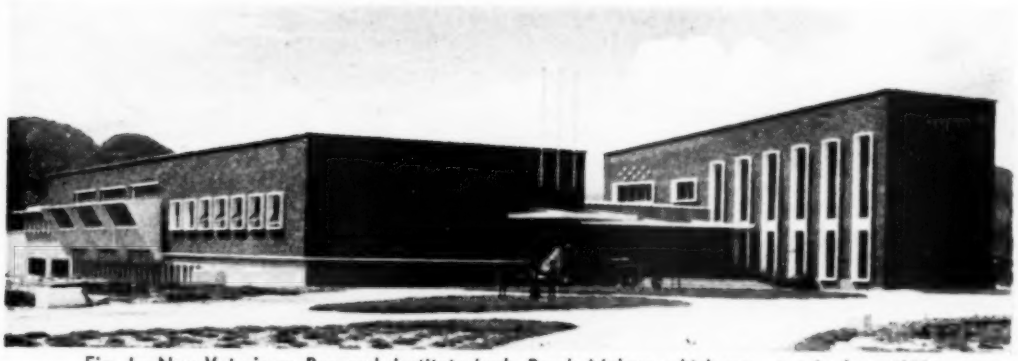

Fig. 1—New Veterinary Research Institute Ipoh, Perak, Malaya, which was open in June 1953.

Malaya

Veterinary Research Institute Has New Facilities.—Dr. Richard F. Coughlan (TEX '52), an Australian attached to the British Colonial Veterinary Service and stationed in Malaya, forwarded pictures of the new Veterinary Research Institute (fig. 1), opened in 1953 by General Templer, and an aerial view of the compound (fig. 2), 33 acres in all, showing residential quarters and the animal house associated with the Institute. The entire project cost about $1 million.

Dr. Coughlan also sent a clipping from the *Penang Sunday Gazette*, which describes the work of the Institute, where six veterinarians and a laboratory staff of 13 carry on research work and produce vaccines for the control of many diseases which trouble the $200 million livestock industry, comprising principally water buffaloes and poultry, and also many other animals. Some of the chief disease problems are fowlpox, Newcastle disease, contagious ecthyma, "hemorrhagic septicemia," and rabies.

Sweden

Dr. Olsson to Present Papers at U.S. Meetings.—Dr. Sten-Erik Olsson, head of the X-ray Department at the Royal Veterinary College in Stockholm, Sweden, was invited to give the following lectures at the annual meeting of the New England Veterinary Medical Association in Boston Mass., Oct. 7-9, 1954: (1) "Disc Protrusion in the Dog—Pathology, Diagnosis, and Therapy," and (2) "Roentgenological Studies of Canine Heart and Lungs in Health id Disease."

At the annual meeting of the Pennsylvania State Veterinary Medical Association in Pocono Manor, Oct. 13-15, 1954, Dr. Olsson read papers on "Disc Protrusion in the Dog" and "Navicular Disease in the Horse."

s/Fritz Magnus Nilsson-Sevelius,
Correspondent

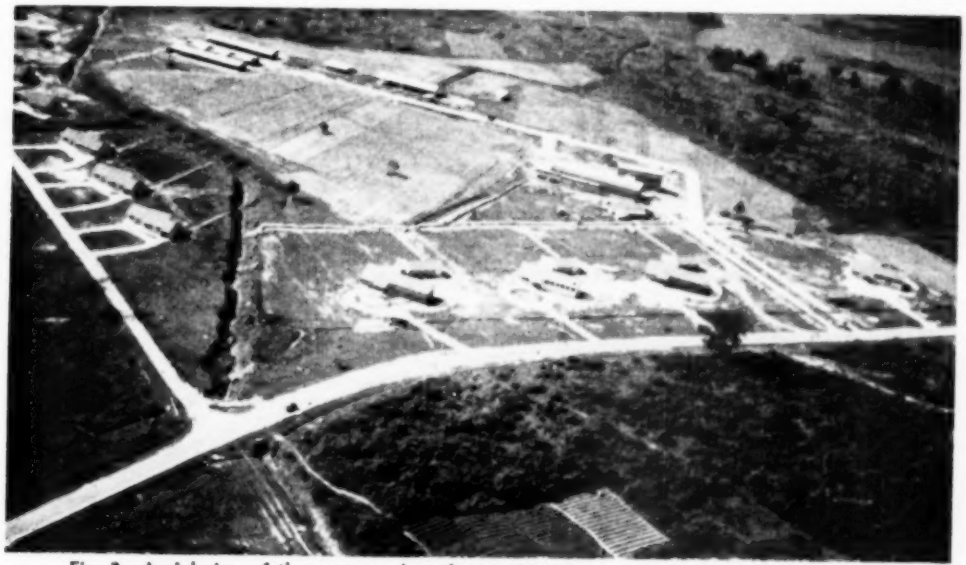

Fig. 2—Aerial view of the compound at the new Veterinary Research Institute in Malaya.

VETERINARY MILITARY SERVICE

Association of Military Surgeons.—The sixty-first annual meeting of the Association of Military Surgeons of the United States will be held at the Hotel Statler in Washington, D.C., Nov. 29-Dec. 1, 1954. The afternoon of December 1, panel meetings of the various sections will be held. **General W. O. Kester,** V.C., U.S.A.F., who will preside over the Veterinary Section, has arranged a program with the following speakers: **Drs. M. R. Clarkson,** deputy administrator, ARS, U.S.D.A.; **C. D. Van Houweling,** director, Livestock Regulatory Programs, ARS, U.S.D.A.; **B. T. Simms,** Animal Disease Research Branch, ARS, U.S.D.A.; **James H. Steele,** chief, veterinary services, Communicable Disease Center, Public Health Service, Atlanta, Ga.; and **Lt. Col. Bernard F. Trum,** V.C., Medical Research Laboratory, Oak Ridge, Tenn.

General J. A. McCallam, president, Veterinary Section, extends a cordial invitation to all veterinarians to attend.

BIRTHS

Dr. (KSC '40) and Mrs. F. G. Gillett, Bay City., Ore., announce the birth of a son, Frank Douglas, on June 13, 1954.

Dr. (MO '54) and Mrs. Fred W. Madden, Sherman, Texas, announce the birth of a daughter, Mary Frances, on July 30, 1954.

Dr. (MO '54) and Mrs. Bernard M. Baker, East Prairie, Mo., announce the birth of a son, Gary Wayne, on Aug. 19, 1954.

Dr. (KSC '51) and Mrs. Marvin B. Jared, Anadarko, Okla., announce the birth of a daughter, Marcia Leah, on Aug. 19, 1954.

DEATHS

★**Newell D. Backus** (COR '05), 75, Elyria, Ohio, died in September, 1954. Dr. Backus was a life member of the AVMA. An obituary appears on page 436 of this JOURNAL.

Neal C. Batson (API '40), 39, Cincinnati, Ohio, died March 17, 1954. Dr. Batson entered the Veterinary Corps, U. S. Army, as first lieutenant soon after his graduation and attained the rank of captain a short time later. He served in this capacity throughout World War II in the United States and Alaska; from 1951 to 1953, he served, as major, in the United States and Germany. Ill health forced his retirement early in 1953. Dr. Batson is survived by his widow; two children, Neal, Jr., and Sheron Lynn; and his brother Dr. Maurice S. Batson (API '49) of Morganton, N. Car.

★Indicates members of the AVMA.

★**Loren C. Blackburn** (KSC '33), 43, Hastings, Neb., died July 14, 1954, in an automobile accident. Dr. Blackburn, a general practitioner, had practiced in Earlham and Winterset before he moved to Hastings. He was admitted to the AVMA in 1937.

★**Bruce Blair** (UP '09), 70, New York, N. Y., died Sept. 6, 1954. Dr. Blair was a member of the New York State Veterinary Medical Association and of the AVMA. An obituary appears on page 435 of this JOURNAL.

★**George W. Derrick** (COR '17), 62, Elbridge, N. Y., died Aug. 19, 1954. Dr. Derrick was a member of the New York State and Central New York Veterinary Medical Associations and of the AVMA. He is survived by his widow.

George D. Fisher (OVC '04), 77, Hope, N. Dak., died Jan. 30, 1954. Dr. Fisher, who had practiced in Hope for nearly forty-seven years, continued his practice until his death. He was a life member of Hope Masonic Lodge and had been a member of the city council and was active in civic affairs. For several years, he had been a member of the AVMA.

★**Ray W. Gannett** (COR '05), 72, Brooklyn, N. Y., died Aug. 23, 1954. Dr. Gannett, a general practitioner, had served on the New York State Board of Veterinary Examiners. He had been a member of the AVMA for more than forty years.

Dr. Gannett is survived by his widow.

Aloysius K. Heagerty (USC '10), Baltimore, Md., died recently.

Ray B. Hurd (KCV '08), Nampa, Idaho, died Oct. 3, 1953. Dr. Hurd had been in ill health for some time prior to his death.

William H. Seute (KCV '10), Pleasanton, Kan., died April 13, 1954. Dr. Seute was a general practitioner.

★**Oscar C. Schwalm** (GR '17), 63, San Antonio, Texas, died Sept. 20, 1954. An obituary appears on page 437 of this JOURNAL.

★**George G. Tanenbaum** (KSC '39), 39, New York, N. Y., died Aug. 10, 1954, at St. Petersburg, Fla. Dr. Tanenbaum was a major in the active Army Reserve and had served overseas during World War II in the Veterinary Corps. After World War II, he had a private practice for three years at Hoosick Falls, N. Y. He was an inspector for the U. S. BAI for some five years, being stationed in New York City and at various stations in the Midwest. His last assignment was as inspector in charge at Fergus Falls, Minn. His widow, Mrs. Leslie Black Tanenbaum, survives. Dr. Tanenbaum was admitted to the AVMA in 1939.

★**Rollin E. Wood** (IND '10), 70, Rockville, Ind., died Aug. 17, 1954, after a year's illness. Dr. Wood was a member of the Indiana Veterinary Medical Association and of the AVMA. He is survived by his widow.

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COMING MEETINGS

Notices of Coming Meetings must be received by 4th of month preceding date of issue

New York State College of Agriculture at Cornell University. Annual nutrition conference for feed manufacturers. Statler Hotel, Buffalo, N. Y., Nov. 4-5, 1954. M. L. Scott, Rice Hall, Cornell University, Ithaca, N. Y., chairman.

U. S. Livestock Sanitary Association. Annual meeting. Hotel Fontenelle, Omaha, Neb., Nov. 10-12, 1954. R. A. Hendershott, 1 West State Street, Trenton 8, N. J., secretary.

American Animal Hospital Association (regional) and Midwest Small Animal Association. Hotel Burlington, Burlington, Iowa, Nov. 10-11, 1954. J. Porter Coble, 2828 S. MacArthur Blvd., Springfield, Ill., secretary.

Association of Military Surgeons. Annual meeting. Hotel Statler, Washington, D. C., Nov. 29-Dec. 1, 1954. General J. A. McCallam, 1507 M St., N.W., Room 109, Washington 5, D. C., president, Veterinary Section.

Animal Care Panel. Annual meeting. Thorne Hall, Northwestern University, Chicago Campus, Chicago, Ill., Dec. 1-2, 1954. N. R. Brewer, 951 East 58th St., Chicago 37, Ill.

Nebraska State Veterinary Medical Association. Annual meeting. Hotel Cornhusker, Lincoln, Neb., Dec. 1-3, 1954. W. T. Spencer, 1250 North 37th Street, Lincoln, Neb., secretary.

Armed Forces Institute of Pathology. Short Course. Armed Forces Institute of Pathology, Washington 25, D. C., Dec. 6-10, 1954. Brig. Gen. Elbert DeCoursey, M.C., U. S. Army, director.

Kentucky Veterinary Medical Association. Semiannual meeting. Ken-Lake Hotel, Hardin, Ky., Dec. 8-9, 1954. R. J. Ausherman, 171 N. Upper St., Lexington, Ky., secretary.

University of Pennsylvania. Annual conference for veterinarians. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., Jan. 4-5, 1955. W. LaGrange, chairman.

Arkansas Veterinary Medical Association. Annual meeting. Hotel Marion, Little Rock, Ark., Jan. 4-6, 1955. Wm. L. Thomas, 906 Broadway, Little Rock, Ark., secretary.

New York State Veterinary College. Annual conference for veterinarians. New York State Veterinary College, Cornell University, Ithaca, N. Y., Jan. 5-7, 1955. W. A. Hagan, dean.

Ohio State Veterinary Medical Association. Annual meeting. Deshler-Hilton Hotel, Columbus, Ohio, Jan. 5-7, 1955. William S. Konold, 50 East Broad Street, Columbus 15, Ohio, executive secretary.

Kansas Veterinary Medical Association. Annual convention. Town House Hotel, Kansas City, Kan., Jan. 6-8, 1955. K. Maynard Curts, 70 Central Ave., Kansas City 18, Kan., secretary.

Tennessee Veterinary Medical Association. Annual meeting. Knoxville, Tenn., Jan. 9-11, 1955. H. W. Hayes, 734 Broadway, North East, Knoxville, Tenn., secretary.

Oklahoma Veterinary Medical Association. Annual meeting. Biltmore Hotel, Oklahoma City, Okla., Jan. 10-11, 1955. C. H. Fauks, 3421 N. W. 20 St., Oklahoma City, Okla., secretary.

Indiana Veterinary Medical Association. Annual meeting. Hotel Severin, Indianapolis, Ind., Jan. 12-14, 1955. W. W. Garverick, Zionsville, Ind., secretary.

Wisconsin Veterinary Medical Association. Annual meeting. Schroeder Hotel, Milwaukee, Wis., Jan. 12-14, 1955. B. A. Beach, 1215 Vilas Ave., Madison, Wis., secretary.

Ontario Veterinary Association. Annual meeting. King Edward Hotel, Toronto, Ont., Jan. 13-15, 1955. G. A. Edge, Box 37, Postal Station F, Toronto 5, Ont., secretary.

Intermountain Veterinary Medical Association. Annual meeting. Hotel Utah, Salt Lake City, Utah, Jan. 17-19, 1955. Wayne Binns, 555 N. Third St. E., Logan, Utah, secretary.

Iowa Veterinary Medical Association. Annual meeting. Hotel Fort Des Moines, Des Moines, Iowa, Jan. 18-20, 1955. F. B. Young, Waukee, Iowa, executive secretary.

Minnesota State Veterinary Medical Society. Annual meeting. Hotel Nicollet, Minneapolis, Minn., Jan. 24-26, 1955. B. S. Pomeroy, School of Veterinary Medicine, University of Minnesota, St. Paul 1, Minn., secretary.

North Carolina Veterinary Medical Association. Annual conference. North Carolina State College, Raleigh, N. Car., Jan. 25-28, 1955. C. D. Grinnells, North Carolina State College, chairman.

Maryland State Veterinary Medical Association. Annual winter meeting. Lord Baltimore Hotel, Baltimore, Md., Jan. 27-28, 1955. John D. Gadd, Cockeysville, Md., secretary.

(Continued on p. 28)

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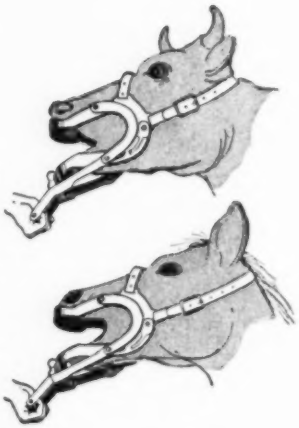

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(COMING MEETINGS—*continued from p. 26*)

Louisiana State University. Annual conference for veterinarians. Louisiana State University, Baton Rouge, La., Feb. 1-2, 1955. W. T. Oglesby, head, Department of Veterinary Science.

Illinois State Veterinary Medical Association. Annual meeting. LaSalle Hotel, Chicago, Ill., Feb. 13-16, 1955. C. B. Hostetler, 1385 Whitcomb Ave., Des Plaines, Ill., executive secretary.

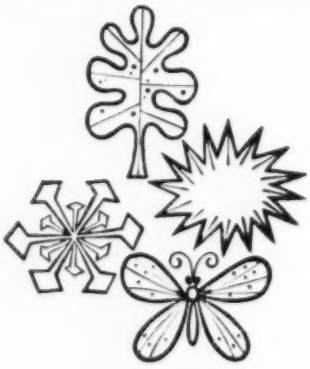
Missouri Veterinary Medical Association. Annual meeting. Jefferson Hotel, St. Louis, Mo., Feb. 21-22, 1955. Paul L. Spencer, P. O. Box 283, Jefferson City, Mo., secretary.

American Animal Hospital Association. Annual meeting. Hotel Statler, Detroit, Mich., May 4-7, 1955. Wayne H. Riser, Skokie, Ill., executive secretary.

Maryland State Veterinary Medical Association. Summer meeting. George Washington Hotel, Ocean City, Md., June 23-24, 1955. John D. Gadd, Cockeysville, Md., secretary.

American Veterinary Medical Association. Annual meeting. Municipal Auditorium, Minneapolis, Minn., Aug. 15-18, 1955. J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.

(*Continued on p. 30*)



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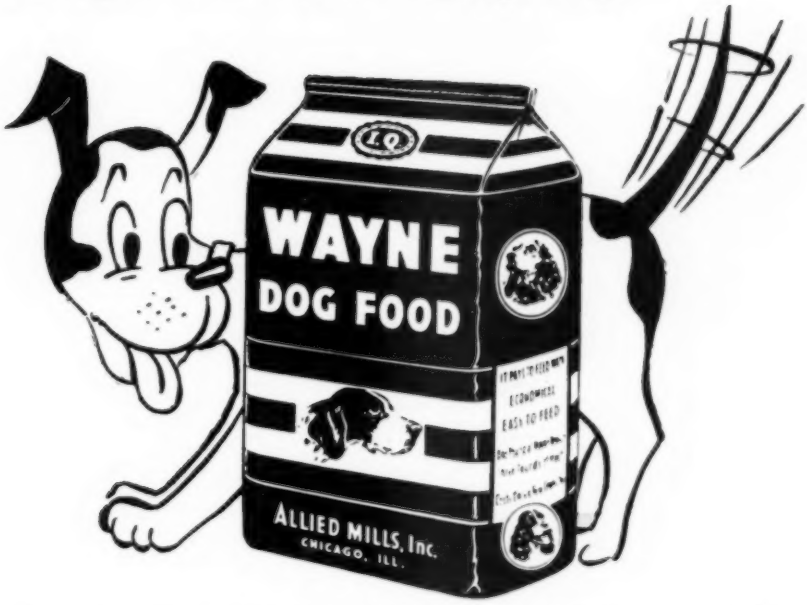

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(COMING MEETINGS—*continued from p. 28*)

Regularly Scheduled Meetings

Atlanta Veterinary Society, the first Tuesday of every month. C. L. Bromley, Jr., 1634 Northside Dr., Atlanta Ga., secretary.

Baltimore City Veterinary Medical Association, the second Thursday of each month, September through May (except December), at 9:00 p.m. at the Park Plaza Hotel, Charles and Madison Streets, Baltimore, Md. Victor I. Sorgen, 133 Wiltshire Rd., Baltimore 21, Md., secretary.

Bay Counties Veterinary Medical Association, the second Tuesday of each month. George W. Eberhart, El Cerrito, Calif., secretary.

Cedar Valley Veterinary Association, the second Monday of each month, except July and August, at Black's Tea Room, Waterloo, Iowa. D. A. Buchanan, Grundy Center, Iowa, secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Herbert Piper, 4990 Ventura Ave., Fresno, Calif., secretary.

Central Carolina Veterinary Medical Association, the second Wednesday of each month at 7:00 p.m. in the O'Henry Hotel in Greensboro. Dr. J. S. Ellis, 2450 Battleground Ave., Greensboro, N. Car., secretary.

Central Indiana Veterinary Medical Association, the second Wednesday of each month. L. M. Borst, 3315 Shelby St., Indianapolis, Ind., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. Wayne H. Riser, 5335 Touhy Ave., Skokie, Ill., secretary.

Coastal Bend Veterinary Association (Texas), the second Wednesday of each month. J. E. Hoban, 4301 S. Port Ave., Corpus Christi, Texas, secretary.

Coon Valley Veterinary Association, the second Wednesday of each month, September through May, at the Bradford Hotel, Storm Lake, Iowa. J. R. Rosdail, Pomeroy, Iowa, secretary.

Cuyahoga County (Cleveland, Ohio) Veterinary Medical Association, the first Wednesday of each month—September through May (except January)—at 9:00 p.m. at the Carter Hotel, Cleveland, Ohio. Roger W. Grundish, 4217 Mayfield Road, South Euclid 21, Ohio, secretary.

East Bay Veterinary Medical Association, bimonthly, the fourth Wednesday. Robert Clemens, 23352 Orchard, Hayward, Calif., secretary.

Eastern Illinois Veterinary Medical Association, the first Thursday of March, June, September, and December. A one-day clinic is held in May. L. E. St. Clair, College of Veterinary Medicine, University of Illinois, Urbana, Ill., secretary.

(*Continued on p. 32*)

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Eastern North Carolina Veterinary Medical Association, the first Friday of each month, time and place specified monthly. C. B. Randall, Kinston, N. Car., secretary.

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Florida, North-East Florida Veterinary Medical Association, the second Thursday of each month, time and place specified monthly. J. O. Whiddon, 829 San Marco Blvd., Jacksonville, Fla.

Greater St. Louis Veterinary Medical Association, the first Friday of the month (except July and August) at the Sheraton Hotel, Spring Ave. and Lindell Blvd. Luther E. Fredrickson, Room 11, Municipal Courts Bldg., St. Louis, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Sunday evening of even-numbered months at the Jefferson Hotel, Peoria, Ill S. M. McCully, Lacon, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society of Kentucky, Inc., the first Wednesday evening of each month, in Louisville or within a radius of 50 miles. Dr. W. E. Bewley, P.O. Box "H", Crestwood, Ky., secretary.

Kansas City Small Animal Hospital Association, the first Monday of each month, at the Hotel Continental. J. A. Zacher, 3632 Main St., Kansas City, Mo., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, at the Exchange Hall, Ninth Floor, Livestock Building, 1600 Genesee, Kansas City, Mo. J. C. Davis, 7332 Canterbury St., Kansas City 13, Mo., secretary.

Kern County Veterinary Medical Association, the first Thursday of each month. R. A. Stiern, 17 Niles St., Bakersfield, Calif., secretary.

Keystone Veterinary Medical Association, the Philadelphia County Medical Society Building, 301 S. 21st Street, Philadelphia, Pa., on the fourth Wednesday of each month. Raymond C. Snyder, 39th and Woodland Ave., Philadelphia 4, Pa., secretary.

Kyowva Veterinary Medical Association, the

(*Continued on p. 34*)

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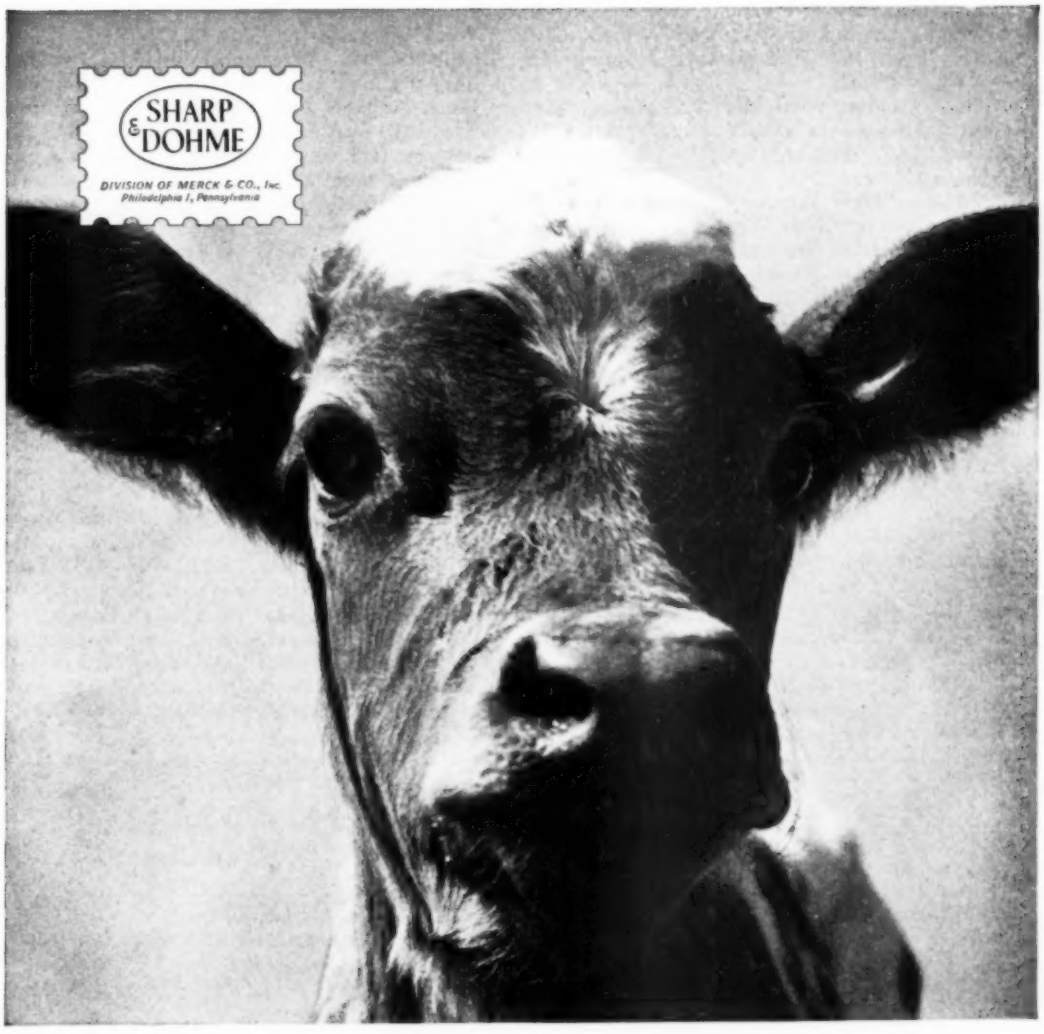

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second Thursday of each month in the Hotel Prichard, Huntington, W. Va., at 8:30 p.m. Karl Mayer, 1531 Fourth Ave., Huntington, W. Va., secretary.

Maricopa County Veterinary Association, the second Tuesday of each month. Charles J. Prchal, 1722 East Almeria Road, Phoenix, Ariz., secretary.

Metropolitan New Jersey Veterinary Medical Association, the third Wednesday evening of each month from September through May, at the Academy of Medicine of Northern New Jersey, 91 Lincoln Park South, Newark, N. J. Myron S. Arlein, 2172 Millburn Ave., Maplewood, N. J., secretary.

Michiana Veterinary Medical Association, the second Thursday of each month, at the Hotel LaSalle, South Bend, Ind. Paul W. Hough, 829 Bryan St., South Bend, Ind., secretary.

Michigan, Southeastern Veterinary Medical Association, the second Thursday of every month, September through May. Gilbert Meyer, 14003 E. Seven Mile Road, Detroit 5, Mich., secretary.

Mid-Coast Veterinary Medical Association, the first Thursday of every even month. George McCollister, 2146 Broad St., San Luis Obispo, Calif., secretary.

Milwaukee Veterinary Medical Association, the third Tuesday of each month, at the Half-Way House, Blue Mound Rd. George F. Lynch, 201 West Devon St., Milwaukee 17, Wis., secretary.

Mobile-Baldwin Veterinary Medical Association, the first Tuesday of each month at the Hotel Admiral Simmes, Mobile, Ala. C. Eric Kennedy, Mobile, Ala., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. Lewis J. Campbell, 66 Marion Ave., Salinas, Calif., secretary.

New Castle County (Del.) Veterinary Association, the first Tuesday of each month at 9:00 p.m. in the Hotel Rodney, Wilmington, Del. Arthur P. Coogan, 2102 New Road, Wilmington 5, Del., secretary.

New York City, Veterinary Medical Association of, the first Wednesday of each month at the New York Academy of Sciences, 2 East 63rd St., New York City. C. E. DeCamp, 43 West 61st St., New York 23, N. Y., secretary.

Northern Colorado Veterinary Medical Association, the second Monday of each month. William D. Carlson, P.O. Box 478, Fort Collins, Colo., secretary.

Northern New Jersey Veterinary Association, the fourth Tuesday evening from September through June, at the Casa Mana Restaurant, Cedar Lane, Teaneck, N. J. Robert R. Shomer, 1680 Teaneck Road, N. J., secretary.

(*Continued on p. 36*)

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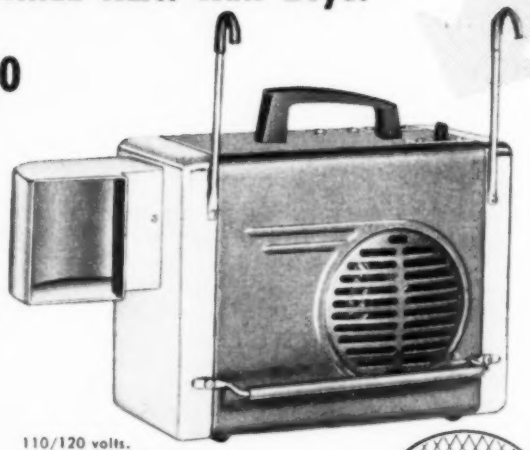


110/120 volts.
7 ft. U.L. approved cord.
50/60 cycle AC current only.

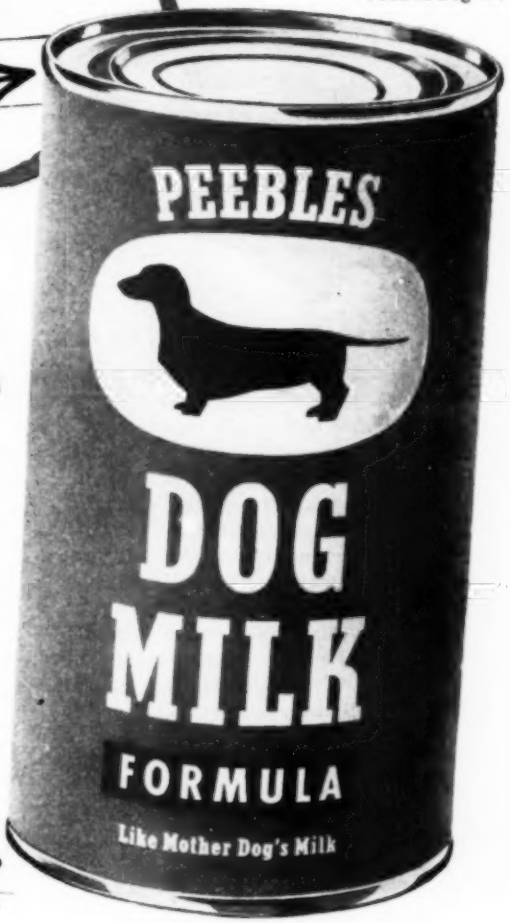
HERE IS THE OPPORTUNITY TO OWN MORE THAN ONE DRYER.

ETHICAL VETERINARY SUPPLY CO.

34-28 31st STREET, LONG ISLAND CITY 6, N. Y.

Feed it Prescribe it with Confidence

Formerly
Peebles Dog-Kit



- **For underweight, ailing or old dogs**
- **For bottle feeding and weaning pups**
- **For conditioning any dog**

Peebles DOG MILK formula is designed expressly for canines and other carnivores: high in fat, low in lactose, amply fortified with vitamins and minerals.

CONCENTRATED—JUST ADD WATER **DOGS LIKE PEEBLES**

Sold by Veterinarians and Pet Shops

For guaranteed analysis write

Western Condensing Company

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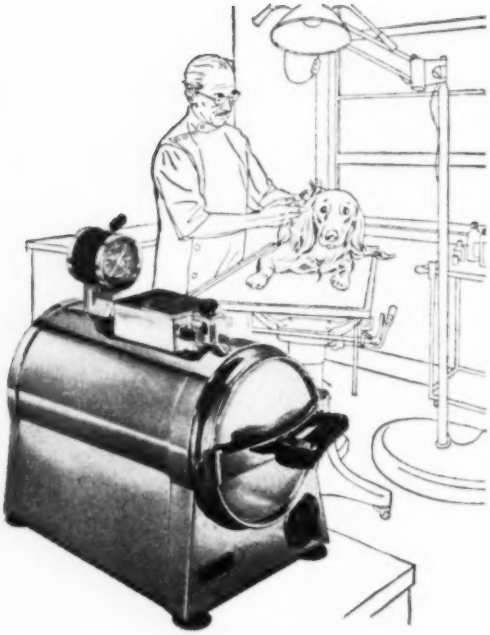

Better sterilization . . . to help you stop *Infectious Hepatitis*

No telling when one of your patients may be a carrier of a Hepatitis-causing virus. It is highly infectious.

Cases show this virus is not airborne. It is transmitted by contaminated instruments. Proper sterilization of needles and instruments is an important step in preventing its spread to other animals.

Autoclave sterilization—once expensive—is now available at a price you can afford. Castle's new "777" Speed-Clave, fully automatic and all stainless steel, costs just $208-$211.

Portable—it weighs 15 lbs. Saves time—gets to sterilizing temperatures in 4-8 minutes!

Get the full story. Mail coupon below.

to: Wilmot Castle Co.
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☐ Send folder on "777" Speed-Clave

Name_____

Street_____

City_____ State_____

My veterinary supply dealer is:_____

Castle LIGHTS AND STERILIZERS

(COMING MEETINGS—*continued from p. 34*)

Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. Tom Hagan, Gen. Del., Escalon, Calif., secretary.

Oklahoma County Veterinary Medical Association, the second Wednesday of every month except August and July. R. J. Keller, 1701 N. Highland Drive, Oklahoma City, Okla., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month at 7:00 p.m. in the Antlers Hotel, San Bernardino, Calif. William J. Kelber, 1111 West A St., Ontario, Calif., secretary.

Orange County Veterinary Medical Association, bi-monthly. Donald E. Lind, 2643 N. Main, Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. P. H. Hand, Box 1035, Millbrae, Calif., secretary.

Piedmont Veterinary Medical Association, the last Friday of each month at 7:00 p.m. in Mull's Motel in Hickory, N. Car. G. V. McCranie, Hickory, N. Car., secretary.

(*Continued on p. 38*)

Sold only to Graduate Veterinarians

FUNGASARC

for the effective treatment of skin conditions

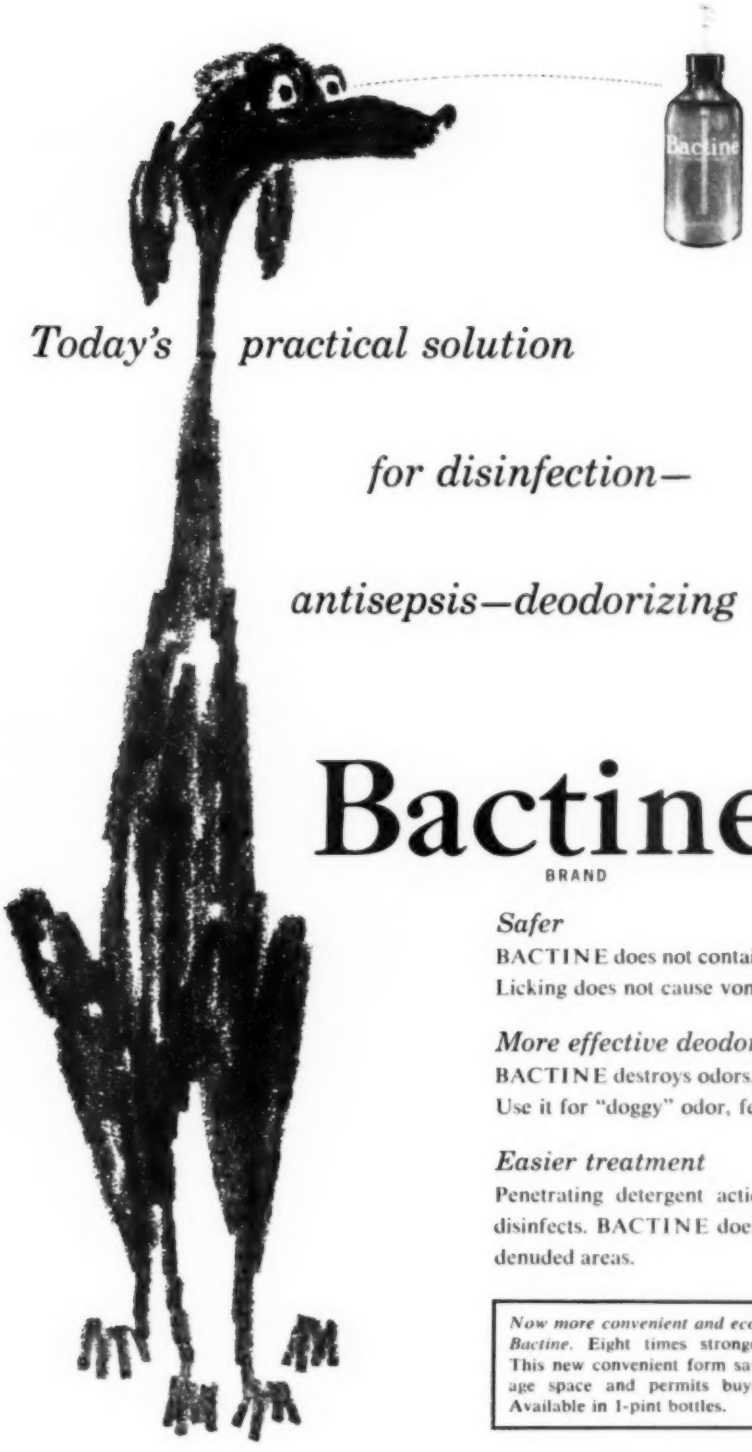
Destroys fungi; sarcoptes scabei canis; demodex canis; mites; fleas; lice. Repels ticks. Non Staining; not greasy; has no objectionable odor, destroys odors of external origin. Non Toxic; may be used daily in recommended dilution. Concentrated; one gallon makes four.

Gallon	Quart
$13.95	$4.00
Makes 4 gallons	Makes a gallon

Available nationally through well known Distributors

Osco Chemical Company, Inc.

P.O. Box 2157, Atlanta 1, Georgia



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Bactine®

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Safer

BACTINE does not contain iodine, mercury or phenol. Licking does not cause vomiting or diarrhea.

More effective deodorizing

BACTINE destroys odors, does not merely mask them. Use it for "doggy" odor, feces, even cat urine.

Easier treatment

Penetrating detergent action cleanses as BACTINE disinfects. BACTINE does not sting or burn, even on denuded areas.

Now more convenient and economical—CONCENTRATED *Bactine*. Eight times stronger than standard BACTINE. This new convenient form saves you money as well as storage space and permits buying in economical quantities. Available in 1-pint bottles.

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for

AVMA Members

The policy, which was developed especially for Association members two decades ago, provides expert defense against claims and suits arising out of the care and treatment of animals, and will pay, to the extent of the policy limits, all expenses and damages resulting from unfavorable verdicts.

In this suit-conscious age, such protection is not only wise but, as shown by the claim files, a practical necessity.

The insurance is placed with one of the largest and most reliable underwriters in the country.

Write at once for an application and descriptive folder.

American Veterinary Medical Association

600 So. Michigan Ave., Chicago 5, Ill.

(COMING MEETINGS—*continued from p. 36*)

Pima County (Arizona) Veterinary Medical Association, the third Wednesday of each month, in Tucson. R. W. Adami, 2103 S. 6th Ave., Tucson, Ariz., resident secretary.

Portland (Oregon) Veterinary Medical Association, the second Tuesday of each month, in the Auditorium of the Upjohn Company. Victor T. Oliver, 9705 S.W. Barbur Blvd., Portland 19, Ore., secretary.

Redwood Empire Veterinary Medical Association, the third Thursday of each month. H. M. Strandberg, 203 D St., Petaluma, Calif., secretary.

Sacramento Valley Veterinary Medical Association, the second Wednesday of each month. S. M. Foster, 430 College, Woodland, Calif., secretary.

Saginaw Valley Veterinary Medical Association, the last Wednesday of each month. F. Ferguson, 1702 S. Dort Highway, Flint, Mich., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month except July and August. E. R. Quortrup, 4005 Rosecrans St., Building 2, San Diego, Calif., secretary.

San Fernando Valley (California) Veterinary Medical Association, the second Friday night of each month at Eaton's Restaurant in Studio City, Calif. Howard C. Taylor, 2811 W. Olive Ave., Burbank, Calif., secretary.

Santa Barbara-Ventura Counties Veterinary Medical Association, Friday evenings every sixth week. Dee Wodars McDermott, 5879 Hollister, Coleta, Calif., secretary.

Seattle Veterinary Medical Association, the third Monday of each month in the home of Dr. Fred Cummings, 5828-5th, N.W., Seattle, Wash.

Southern California Veterinary Medical Association, the third Wednesday of each month. Rankin W. McIntyre, 203 Administration Building, Union Stockyards, Los Angeles, Calif., secretary.

South Florida Veterinary Society, the third Tuesday of each month, at the Seven Seas Restaurant, Miami, Fla. E. A. Majilton, 1093 N. E. 79th St., Miami, Fla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, in Director's Parlor of the Brookside State Bank, Tulsa, Okla. John Carnes, Muskogee, Okla., secretary.

WHITE'S ANIMAL CASTRATION

A new textbook for TEACHERS, STUDENTS and PRACTITIONERS.

Price $7.50

For sale by book dealers, also by the Author, George Ransom White, M.D., D.V.M., P. O. Lock Box 901, Nashville, Tennessee.

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Patent Applied For.

The modern scientific temperature indicator

Here at last is a thermometer that is as easy to read as a clock, as accurate as only a precision electrical instrument can be, and fast enough for *immediate* reading.

It is light in weight, handy pocket size, and will pay its way by reducing loss and breakage.

Saves the busy doctor time and energy. You can be sure of dependable operation.

Fully Guaranteed

Manufactured by **Burlington Instrument Co.**
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☐ Enclosed check for $68.50 for one Swiftem postpaid
☐ Send C.O.D.
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☐ Please send information on the new Swiftem Thermometer.

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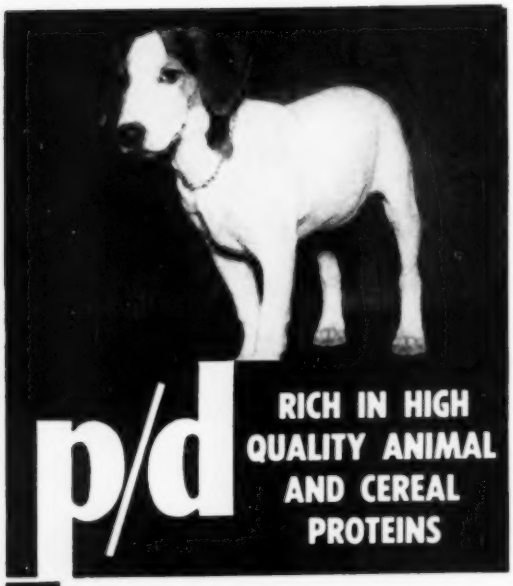

DIAGNOSIS

A three months old pup for distemper vaccination. Fecal examination—hookworm (3 plus), red blood cell count 3,000,000. Dog is underweight and growth is retarded.

TREATMENT

Administer serum, prescribe p/d 50 calories per body pound daily, treat for intestinal parasites one week later and proceed with immunization when patient is in satisfactory condition.

SCIENTIFIC BASIS FOR PROCEDURE

Antibodies are developed from amino acids made available from high quality dietary protein.

(Inquiry form for graduate veterinarians only)
HILL PACKING COMPANY, Box 148, Topeka, Kan.
Send information on therapeutic feeding ☐
Send information on other Hill products ☐

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P.O. Box 148 Topeka, Kan.

CLASSIFIED ADVERTISEMENTS

Twenty-five words or less, $2.50; 8 cents for each additional word. Replies sent in care of the JOURNAL, 25 cents extra.

Remittance must accompany order.

Deadline for want ads 8th of month preceding date of issue.

Names of classified advertisers using key letters can not be supplied. Address your reply to the key letters, c/o JOURNAL of the AVMA, 600 S. Michigan Ave., Chicago 5, Ill., and it will be transmitted to the advertiser.

CHANGE OF RATES

Effective with the January, 1955, issue

Personal Want Ads—$4.00 for the first 25 words and 10 cents for each additional word, 35 cents for use of box number.

Commercial Want Ads—$5.00 for the first 25 words, 25 cents for each additional word.

Wanted—Veterinarians

Veterinarian wanted for primarily small animal practice; experience unnecessary. Permanent position leading to percentage, partnership, or lease. Connecticut license. Address "Box F 1," c/o JOURNAL of the AVMA.

Veterinarian from accredited school wanted as an associate in mixed practice on West Coast. Future assured. Address "Box F 2," c/o JOURNAL of the AVMA.

Job opportunities as state employed veterinarians now exist in Wisconsin's State-Federal Cooperative Program. These civil service positions pay an annual starting salary of $5,472. Permanent locations in many parts of the state are available. Applicants must be United States citizen. Veterinarians are requested to contact the Bureau of Personnel, State Capitol, Madison 2, Wisconsin.

(Continued on p. 42)

M·A·C

Quick relief for Bone, Bursal or Tendon Lameness
Single Bottle.....$2.00
3 and 1 free.....5.00
6 and 2 free.....9.00
12 and 4 free.....17.00
24 and 4 free.....28.00

CARTER-LUFF CHEMICAL CO.
Hudson, N. Y.

It's DINNERTIME

FOR 22,500,000 DOGS!

. . . Yes, there are about 22,500,000 dogs in the United States today. And about 75% of these dogs are fed some kind of commercial dog food.

However, not only does the *amount* of commercial dog food fed each dog vary day by day, but this food often varies in degree of nourishment, palatability and assimilability. In individual brands, these factors may vary even from feeding to feeding.

It seems to us that the question of a better standard of nourishment for America's canine millions should concern dog-food manufacturers as seriously as it does veterinarians.

Here, at Gaines—in our plant, laboratories and research kennels—there is a continuous program of quality control, testing and improvement-research to maintain what we believe to be the highest standards possible in a modern dog food. The result is . . .

Homogenized Gaines Meal

A special Gaines process has combined ingredients of the Gaines formula into appetizing granules. These granules contain uniform amounts of every food element dogs are known to need . . . and are more assimilable, more palatable, far easier to feed! This uniformity is guaranteed in every package, every feeding, every *mouthful!*

Gaines Homogenized Meal is our answer to the need for a higher standard of dog nutrition. It is the answer of many veterinarians whose recommendations have helped make Gaines America's *largest-selling* dog meal.

We hope it is your answer, too!

Gaines

A Product of General Foods

HOMOGENIZED DOG MEAL

"Nourishes EVERY INCH of a Dog"

Young veterinarian wanted to do field service and extension work in the Middlewest for large producer of veterinary biologicals. Address "Box F 6", c/o JOURNAL of the AVMA.

Veterinarian wanted for mixed practice. Good salary first 3 months; then salary and commission on net. Chance for ownership after 6 months. Real estate included. Owner retiring; established 35 years. Give complete data in first letter. Address "Box F 9," c/o JOURNAL of the AVMA.

Veterinarian with practice experience, preferably in hog belt, wanted by manufacturer of veterinary biologicals. Headquarters in Sioux City, Iowa; salary, bonus, car, life and health insurance plans, retirement plan. Address "Box F 10," c/o JOURNAL of the AVMA.

Additional veterinarians wanted for medical staff of large hospital for small animals in New York City. Address "Box F 12," c/o JOURNAL of the AVMA.

Veterinarian wanted by veterinary research division of major company with widespread livestock interests, for clinical research and service work primarily in diseases of poultry. Must be recent graduate of AVMA-approved school with interest and preferably experience in poultry disease control. Send qualifications to "Box E 25," c/o JOURNAL of the AVMA.

Experienced veterinarian wanted with Maryland license to operate or lease established small animal hospital. Excellent opportunity for ambitious man. Address "Box F 23," c/o JOURNAL of the AVMA.

Veterinarian wanted as assistant in Richmond small animal hospital; license in Virginia required. Salary plus percentage. Address "Box F 27," c/o JOURNAL of the AVMA.

Experienced veterinarian wanted; capable of handling lucrative small animal hospital on Long Island. Salary plus commission first year, opportunity full partnership thereafter. New York State license required. Address "Box F 29," c/o JOURNAL of the AVMA.

Opportunity for veterinarian with Connecticut license and some capital to establish himself, build up his own practice, and buy into a hospital; near New York state line. Address "Box D 21," c/o JOURNAL of the AVMA.

Remittance must accompany advertisement

Veterinarian wanted to assist in small animal practice; license in Pennsylvania required. Salary and commission. Apartment available. Address Dr. J. L. Putnam, 8925 Upland Terrace, Pittsburgh 21, Pa.

(*Continued on p. 44*)

NOW! Fast . . . Safe . . . SURE Way To Dehorn Calves

Sunbeam STEWART

AUTOMATIC HEAT CONTROL CALF DEHORNER

Electric dehorning with the new Sunbeam Stewart Calf Dehorner is *fast, safe* and *certain.* Dehorning can be done any time of year. Only a few minutes are required for the entire job. No loss of blood—no open flesh wound—no bad after effects. Dehorner has automatic control for steady high heat for dehorning or soldering. Cool, easy-grip handle. Complete with heavy duty soldering tip. $15.95.

- Automatic Control for Steady Heat
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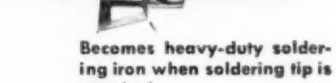
- No Loss of Blood—No Open Flesh Wound



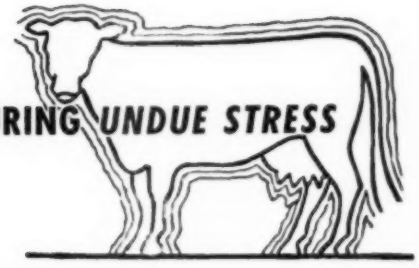
Becomes heavy-duty soldering iron when soldering tip is attached.

Write for information about Sunbeam Stewart Dehorner and animal clipping equipment

Sunbeam CORPORATION *(formerly Chicago Flexible Shaft Company)*

5600 W. Roosevelt Rd., Dept. 47, Chicago 50, Illinois

FOR STIMULATING ANIMALS DURING *UNDUE STRESS*



dynamone

ARMOUR

Primary ketosis of dairy cows (if glucose therapy is utilized)*
Dehydration
Fever toxemias
Exhaustion or fatigue
Pre- and postoperative support
Management of convalescence
Cachexia

***Dynamone (Armour) cannot be considered as a replacement for Adrenemone in severe cases of primary ketosis.**

2-way therapeutic action

An efficient and economical physiological stimulant, containing 100 U.S.P. units of ACTH in a 50% glucose solution. Dynamone (Armour) provides the animal with a two-fold source of energy (1) REPLACEMENT THERAPY glucose being an immediate available energy source.

(2) STIMULANT THERAPY — ACTH serves as a stimulant for adrenals providing the entire spectrum of gluco-corticoids (compound E-and F-like steroids) which in turn accelerate the conversion of fat and protein to glucose and glycogen.

Dynamone (Armour) maintains the blood sugar concentrations at normal or above normal levels for eight or more hours and is *four or more* times as effective as glucose alone in maintaining blood sugar levels.

Package information: Dynamone (Armour) is available in cartons containing 6 and 12 x 500 cc. bottles.

ARMOUR **Veterinary Laboratories**
A Division of Armour and Company
520 N. Michigan Ave., Chicago 11, Ill.

Veterinarian wanted to conduct small animal practice in Chicago area for one- to three-month-period. State qualifications and salary expected. Address "Box E 19," c/o JOURNAL of the AVMA.

Ambitious young veterinarian wanted for general practice. Salary and percentage. Please give full details and personal data. Florida license necessary. Excellent opportunity. Address "Box F 31," c/o JOURNAL of the AVMA.

Wanted—Positions

Experienced relief veterinarian available; small animals only. New York and New Jersey licenses. Address D.V.M., 1007 80th St., North Bergen, N.J.

I'm tired of working by myself. How about you? Is your practice large enough for another man? Graduate of approved school, 1952; age 28. Licensed in 2 southern states. Address "Box F 7," c/o JOURNAL of the AVMA.

Remittance must accompany advertisement

Retired Bureau veterinary inspector with 9 years' experience in meat inspection desires position in a plant under municipal inspection. Location in a southwestern state preferred. Address "Box F 8," c/o JOURNAL of the AVMA.

A 1953 graduate with one year of small animal experience desires position in small animal or mixed practice leading to permanent position, partnership, lease, or purchase. Licensed in Florida and North Carolina. Available immediately. Address "Box F 30," c/o JOURNAL of the AVMA.

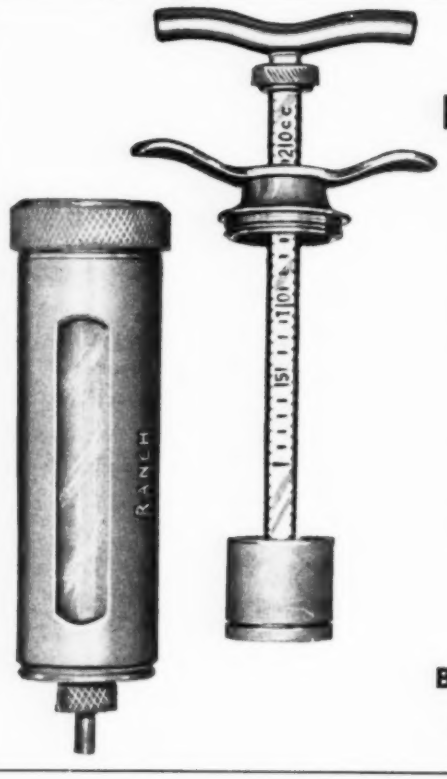
Position wanted with general practitioner in Iowa. Graduate of AVMA-approved school; two years, BAI; married. Address "Box F 16," c/o JOURNAL of the AVMA.

Graduate of AVMA-approved school, 1954, desires position with large animal practitioner in Middlewest; prefer one preparing to retire. Three children; 30 years old. Address "Box F 17," c/o JOURNAL of the AVMA.

Recent graduate desires permanent position as assistant in busy small animal hospital. Married, age 31, draft exempt; salary secondary. Address "Box F 24," c/o JOURNAL of the AVMA.

Available, retired federal veterinary meat inspector, also experienced in testing for brucellosis and tuberculosis. Address "Box F 25," c/o JOURNAL of the AVMA.

(*Continued on p. 48*)



NEW IMPROVED RANCH RECORD VETERINARY SYRINGE

The Ranch Syringe was improved lately with a new two piece top cap. The plunger can be removed for sterilization without removing the glass barrel from the metal frame. This improvement makes it easier to sterilize and eliminates breakage. Smooth operation and accurate dosage is assured at all times.

The Ranch Syringe is made with finger bars or three rings.

Inquire at your nearest veterinary dealer or wholesaler about this new improved outstanding product.

Sizes 2cc. to 40cc.

Literature Upon Request

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50 Thayer St., Boston 18, Mass.

THE VETERINARIAN'S CREED

To regard my profession as something more than a means of livelihood;

To value character more highly than reputation and truth above popularity;

To be merciful and humane, preventing needless suffering among dumb beasts;

To be faithful and zealous, preventing needless loss to those I am called on to serve;

To guide my conduct by sober judgment and my judgment by a never-sleeping conscience;

To be modest and open-minded and thankful for every opportunity to increase my knowledge and my usefulness;

To be a co-worker with my fellow practitioners by the mutual interchange of counsel and assistance;

To be true to myself, measuring my success by the value of the service I render rather than by the fee I receive.

R. R. DYKSTRA, D.V.M.
School of Veterinary Medicine, Kansas State College

Discovered by Pfizer
and developed by
Pfizer into a growing
line of veterinary
dosage forms,

Tetracycline-Vet

offers excellent broad-
spectrum coverage
and outstanding
therapeutic efficiency.

This page with Dr. Dykstra's VETERINARIAN'S CREED on the reverse side can be removed from this journal and framed for display in your waiting room or office.*

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PFIZER LABORATORIES, Brooklyn 6, N. Y.
Division, Chas. Pfizer & Co., Inc.

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Veterinarians

SAVE UP TO $50.00

Here is the most generous offer ever made for the finest dog food ever produced. For a limited period (Oct. 11th thru Nov. 30th) you can get up to 500 pounds of Kasco Complete Dog Ration FREE! This is only for Veterinarians in the areas served by Kasco.

ONE BAG OF KASCO DOG FOOD FREE WITH EVERY BAG YOU BUY

For one purchase only (Minimum order of 300 pounds) —at one time—you will receive one free bag (any size) for every bag you buy up to 500 pounds. For example, if you buy ten fifty-pound bags *in one order* you will get ten more at no extra cost—all delivered at the same time.

You can't afford to pass up this exceptional offer. You can cut feeding costs and save as much as $50.00 cash. You can't buy a better dog food—you can't find a better offer—Order from the Kasco salesman or send coupon below.

COUPON

KASCO MILLS, INC.
Waverly, New York - or - Toledo, Ohio
(MAIL TO NEAREST ADDRESS)

Gentlemen:

Please have the Kasco salesman call me regarding your free offer.

Signed_____

Address_____

NEW HIGH POTENCY

Advantages

HIGH POTENCY

Greater adrenocortical stimulation with smaller doses.

HIGH PURITY

Low content of foreign solids and low content of proteins.

EASE OF ADMINISTRATION

Reduced likelihood of local sensitivity reactions on injection.

ECONOMY

Eliminates inconveniences and expense of frequent injections.

SQUIBB

TREATMENT FOR KETOSIS

PROLACTHYL* HP

veterinary

SQUIBB Corticotropin Gel (Highly Purified)

Most cases respond promptly to single injection

● Highly purified corticotropin (ACTH) in Prolacthyl HP Veterinary produces greater adrenocortical stimulation unit for unit than older forms of corticotropin – with rapid reversal of ketosis symptoms.

Most cases respond to a single dose of 5.0 cc. to 10 cc. (equivalent to 300 U.S.P. units to 600 U.S.P. units).

Blood sugar levels are usually raised to normal limits within 24 hours. Increased milk production may generally be expected within 3 days.

Supplied in vials of 10 cc. Each cc. provides 60 U.S.P. units of corticotropin. Order from your veterinary supply house.

For further information, write: SQUIBB, *Veterinary Department*, 745 Fifth Avenue, New York 22, N. Y.

Sold only to veterinarians

*PROLACTHYL is a tradmark.

A NAME YOU CAN TRUST

(CLASSIFIED ADS—*continued from p. 44*)

Wanted—Practices

Veterinarian desires to purchase a small animal practice in the Northeast, preferably New York State. Address "Box E 11," c/o JOURNAL of the AVMA.

Want to buy small animal hospital with residence. Have $20,000 for down payment. Replies will be kept confidential. Licensed in Connecticut, New York, Pennsylvania, and Ohio. Address "Box F 19," c/o JOURNAL of the AVMA.

Veterinarian wants to buy or lease active, profitable small animal hospital in California. Give full particulars in first reply. Address "Box F 26," c/o JOURNAL of the AVMA.

For Sale or Lease—Practices

Small animal practice and equipment for sale or lease in Hollywood, Calif. Established 15 years; real opportunity. Address "Box E 24," c/o JOURNAL of the AVMA.

Well-equipped small animal hospital for sale in southern California. Established 25 years; 50 kennels; would lease. Includes 5-room apartment. Address "Box F 4," c/o JOURNAL of the AVMA.

Busy dog and cat hospital for sale; long-established, lucrative practice on main thoroughfare in built up area Long Island, N.Y. Modern brick hospital, capacity 75. Ill health compels me to retire. Exceptional opportunity, 1 or 2 veterinarians. Address "Box D 5, c/o JOURNAL of the AVMA.

Mixed practice, predominantly dairy, for sale in northern California. Facilities for both large and small animals. Address "Box D 18," c/o JOURNAL of the AVMA.

Remittance must accompany advertisement

Well-established diversified mixed practice for sale in Ohio; 40-50% small animals and poultry, 60-50% large animals, dairy cattle, and swine. Includes small animal hospital recently constructed, 8-room home with 3-room apartment; home is old but well cared for. All on same lot. This practice has been well managed and cared for and is one you hope to have always; fine town and good clientele. Fine practice for a partnership. Average gross, $40,000 and increasing. Price, $34,000 takes all; must be able to put $15,000 down, balance monthly. Address "Box D 22," c/o JOURNAL of the AVMA.

(*Continued on p. 54*)

MORE TIME FOR FISHING

BECAUSE HISTACOUNT KEEPS THE RECORDS STRAIGHT

More time for relaxation . . . more time for patients . . . more time!

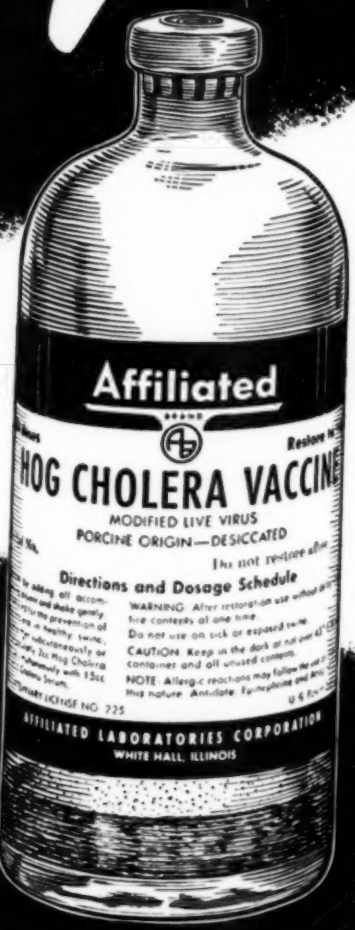
The perennial cry of the Doctor has a modern answer. It's simply Histacount Bookkeeping and Filing Systems which cut paper work to a minimum, add system and order to detail work and keep records "ship shape" . . .

Start your Histacount system and find the time your patients (and hobbies) require.

Professional Printing Company, Inc.
America's Largest Printers to the Professions.
New Hyde Park, New York.

THE TRULY PROFESSIONAL

Vaccine



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For cattle, swine, horses...

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Vitamin Supplement

INGREDIENTS

Vitamin A Acetate (65 Mg. per lb.), Cod Liver Oil with added Vitamin A & D Concentrate, 1.60% Vitamin B-12 and Antibiotic Feed Supplement, .80% Wheat Germ Oil, Dried Buttermilk, Wheat Germ Meal, Cane Molasses, Dehydrated Alfalfa Meal, Animal Liver & Glandular Meal, Dextrose, Soybean Meal, .0002% Riboflavin, .055% Niacin, 2.15% Irradiated Dried Yeast, .0004% Thiamin Chloride, .0028% Ascorbic Acid, .011% Choline Chloride, .0002% Calcium Pantothenate, Fish Meal, Fish Solubles, Linseed Meal, Corn Germ Meal, Oat Groats, Dicalcium Phosphate, .5% Oxide of Iron, .083% Potassium Iodide, 1.75% Manganese Sulphate, .016% Zinc Sulphate, .025% Iron Gluconate, .137% Calcium Gluconate, .017% Copper Gluconate, .030% Manganese Gluconate, .005% Cobalt Carbonate.

Guaranteed Analysis	*Per Cent*
CRUDE PROTEIN, NOT LESS THAN	21.50%
CRUDE FAT, NOT LESS THAN	3.15%
CRUDE FIBRE, NOT MORE THAN	4.50%
CALCIUM, NOT LESS THAN	5.60%
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PHOSPHORUS, NOT LESS THAN	2.60%
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Sold to veterinarians only

Formula HA is a product of Ultra-Life Laboratories, Inc., East St. Louis, Illinois

Correspondence

Neglected Inspection at Stock Show and Sale

Aug. 25, 1954

Dear Dr. Aitken:

Just a line to mention that a client of mine has just returned from the Angus Futurity Show and Sale at Lexington, Ky. I took great pains to properly test his cattle for this show and also had the state veterinarian place his stamp of approval on the certificates. My client informed me that no one asked him for any health record of his cattle nor, as far as he could determine, of any other exhibitor at the show.

He was wondering if the detailed test of the cattle was necessary. Also whether, without inspection, there was danger of his cattle being exposed to untested diseased cattle at the show.

I have experienced similar situations before.

Perhaps a short note in the JOURNAL might catch the eye of the various sanitary boards so that they might make some extra effort to see that there is proper veterinary inspection at the various shows and livestock sales, especially where out-of-state livestock is concerned.

Thanks.

Yours very truly,
s/P. E. Treman, D.V.M.
Odebolt, Iowa.

Renal Osteodystrophy in Man.—Renal osteomalacia, due to glomerular affection, is distinguished from renal rachitis due to tubular affection. The first depends on acidosis with phosphate retention; the second is partly congenital and depends on reduced phosphate reabsorption. The latter causes osteomalacia in adults and dwarfed growth in children. Treatment consists of vitamin D, up to 500,000 units daily, plus calcium phosphate.—*J. Am. M. A., Oct. 17, 1953.*

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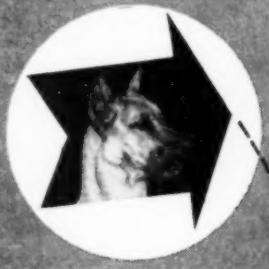

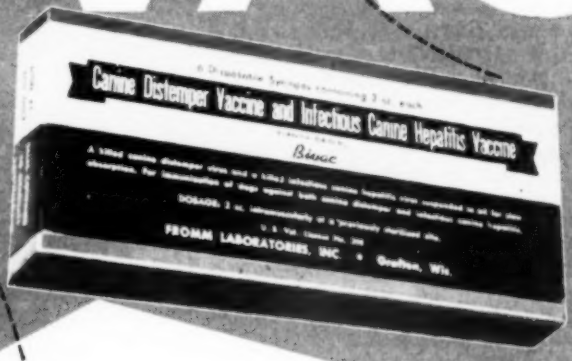

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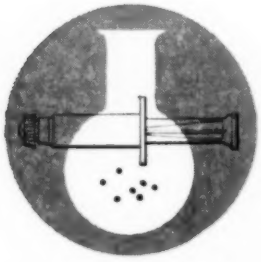

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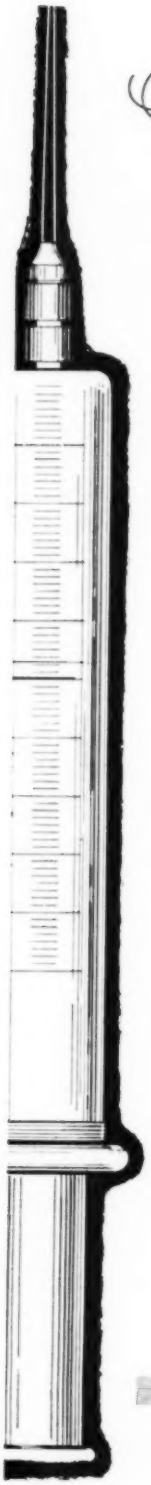

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Small animal hospital for sale on busy state highway at city limits of large northern Ohio city. Total price of $21,000 includes x-ray, cages, equipment, instruments, and drugs; 130-foot frontage and large parking lot. Address "Box F 21," c/o JOURNAL of the AVMA.

(*Continued on p. 56*)

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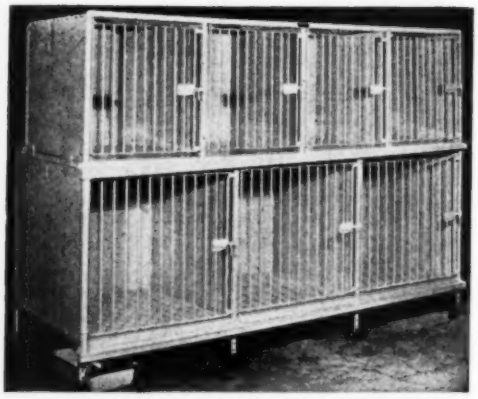

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(CLASSIFIED ADS—*continued from p. 54*)

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(*Continued on p. 57*)

(CLASSIFIED ADS—*continued from p. 56*)

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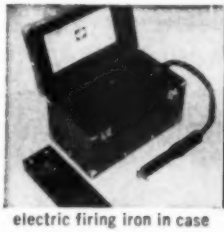
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New NICHOLSON hi-current firing iron gives even heat on half the current

Our new 1955 *hi-current* firing iron is now ready for shipment. With a new, greatly improved transformer, this unit uses *half* the power formerly needed. Only 600 watts! This means you get constant, even heat in barns with old wiring.

You can use the new NICHOLSON electric firing iron and cautery in many simple surgical operations such as removal of warty growths, ear polypi, certain tumors, and in castration or spaying. And, of course, for firing, it is unexcelled. Heat is instant—and constant at any one of the three "heats" you select, 110 v AC. Comes in steel covered case with washable black lining. Supplied complete with 11 tips and points.

Write for leaflet about this superb instrument, or ask your veterinary supplier. Nicholson Manufacturing, Inc. Box 7115, Denver 6, Colorado.

NICHOLSON
precision veterinary equipment

PRODUCTS ARE KNOWN BY THE RESULTS THEY PRODUCE

Treat Bacterial Infections with...

TRI-SULFA SOLUTION

An excellent solution for intravenous or intraperitoneal injection. TRI-SULFA Solution is a combination of 4% each of the Sodium salts of Sulfamerazine, Sulfathiazole, and Sulfadiazine. Immediately after parenteral administration the sulfonamides start acting upon micro-organisms in the blood. Supplied in: Ctn. 6-250 cc.

SULFA-4 TABOLES (240 gr.)

Each of the 4 sulfas — thiazole, nilamide, pyridine, and cetamid — has its specific action in this well-balanced combination which assures a broad spectrum of activity . . . all ingredients are readily absorbable, thus promoting rapid bacteriostatic action . . . also there is greater tolerance to these combined sulfonamides than can be had from single sulfas.

Supplied in: Boxes of 50

HAVER-GLOVER LABORATORIES
KANSAS CITY, MO.

"SHIPPING FEVER" Antisera

Anti-Hemorrhagic Septicemia Serum
(Lockhart)

Anti-Corynebacterium Pasteurella Serum
(Lockhart)

Now Reduced in Price

so that either serum can be used prophylactically or therapeutically in adequate dosage under the present cattle market structure.

The show and shipping season is now at hand. Eliminate trouble by pre-exposure use of specific biologics.

Price schedule:	Anti-Hemorrhagic Septicemia Serum	Anti-Corynebacterium Pasteurella Serum
250 cc	$ 3.00	$ 3.25
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*12-500 cc	65.00	67.50

*Special packing. Not returnable for credit or exchange.

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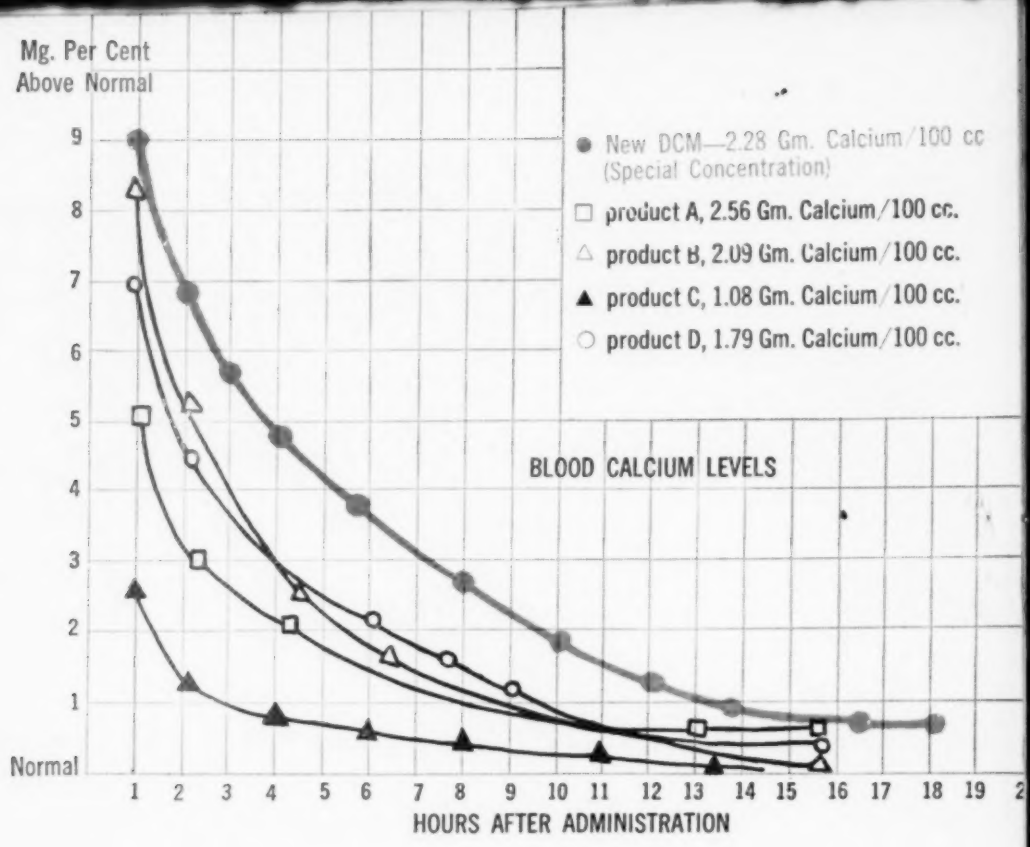

new DCM

SPECIAL CONCENTRATION

gives 50% higher blood calcium levels and keeps them high longer

Why you'll prefer New DCM:

1. DCM (SPECIAL CONCENTRATION) gives 50% higher initial blood calcium levels (plus dextrose and magnesium).
2. New DCM provides optimum calcium levels at ½ cc. per pound body weight.
3. New DCM's pH is practically neutral—and can be given subcutaneously or intraperitoneally.
4. No increase in price—thanks to Jen-Sal's new volume production facilities.

New DCM is an entirely new dextrose, calcium, magnesium solution, based on new and vastly superior calcium salts *never before used in any similar intravenous product.*

New DCM's effectiveness has been confirmed by practitioners throughout the U. S. Over 5168 individual blood level determinations were used in its clinical evaluation.

We suggest you order a trial dozen of new DCM. Same price as standard product. Be sure to indicate the words SPECIAL CONCENTRATION on your order.

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